Product Code	Description
OP-000001	MOTiF PD-1/PD-L1 Panel: Auto Lung Cancer Kit
Components	
FP1609	1X Plus Automation Amplification Diluent
OP-001000	Opal Polaris 480
OP-001001	Opal 520 Reagent
OP-001003	Opal 570 Reagent
OP-001004	Opal 620 Reagent
OP-001006	Opal 690 Reagent
OP-001007	Opal TSA-DIG Reagent
FP1490A	Spectral DAPI
ARD1001EA	Antibody Diluent
ARH1001EA	Opal Polymer HRP Cocktail
DMSO0500UL	DMSO
OP-001008	Opal Polaris 780
OP-000501	RTU PD-L1
OP-000504	RTU PD-1
OP-000508	RTU CD68
OP-000510	RTU CD8
OP-000512	RTU FoxP3
OP-000515	RTU PanCk

1 Identification

Product identifier

· ***Trade name: 1X Plus Automation Amplification Diluent***

· ***Product number: FP1609***

· ***Application of the substance / the mixture Laboratory chemicals***

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Akoya Biosciences, Inc.
100 Campus Drive, 6th Floor
Marlborough. MA 01752 USA

· ***Information department:***
US Technical Support
855.896.8401

· ***Emergency telephone number:***
If inside USA, call CHEMTREC at 1-800-424-9300
If outside USA, call CHEMTREC at 1-703-527-3887

2 Hazard(s) identification

· ***Classification of the substance or mixture***
The product has been classified and is not hazadous according to the Globally Harmonized System (GHS).

· ***Label elements***
· ***GHS label elements*** *Void*
· ***Hazard pictograms*** *Void*
· ***Signal word*** *Void*
· ***Hazard statements*** *Void*
· ***Classification system:***
· ***NFPA ratings (scale 0 - 4)***

Health = 0
Fire = 0
Reactivity = 0

3 Composition/information on ingredients

· ***Chemical characterization: Mixtures***
· ***Description:*** *Mixture of the substances listed below with nonhazardous additions.*

· ***Dangerous components:***		
1330-43-4	*boric acid, disodium salt*	*<1%*
10043-35-3	*boric acid*	*<1%*

4 First-aid measures

· ***Description of first aid measures***
· ***General information:*** *No special measures required.*
· ***After inhalation:*** *Supply fresh air; consult doctor in case of complaints.*
· ***After skin contact:*** *If skin irritation continues, consult a doctor.*
· ***After eye contact:*** *Rinse opened eye for several minutes under running water.*
· ***After swallowing:*** *If symptoms persist consult doctor.*

(Contd. on page 2)

(Contd. of page 1)

· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
1330-43-4	boric acid, disodium salt	6 mg/m³
10043-35-3	boric acid	6 mg/m³
25322-68-3	Polyethylene glycol	30 mg/m³
7722-84-1	hydrogen peroxide solution	10 ppm
12058-66-1	Sodium Stannate	11 mg/m³

· **PAC-2:**		
1330-43-4	boric acid, disodium salt	88 mg/m³
10043-35-3	boric acid	23 mg/m³
25322-68-3	Polyethylene glycol	1,300 mg/m³
7722-84-1	hydrogen peroxide solution	50 ppm
12058-66-1	Sodium Stannate	120 mg/m³

· **PAC-3:**		
1330-43-4	boric acid, disodium salt	530 mg/m³
10043-35-3	boric acid	830 mg/m³
25322-68-3	Polyethylene glycol	7,700 mg/m³
7722-84-1	hydrogen peroxide solution	100 ppm
12058-66-1	Sodium Stannate	720 mg/m³

7 Handling and storage

· **Handling:**
· **Precautions for safe handling** No special measures required.

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· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and containers:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
1330-43-4 boric acid, disodium salt (<1%)	
REL	Long-term value: 1 mg/m³ anhydrous
TLV	Short-term value: 6* mg/m³ Long-term value: 2* mg/m³ *as inhalable fraction
10043-35-3 boric acid (<1%)	
TLV	Short-term value: 6* mg/m³ Long-term value: 2* mg/m³ *as inhalable fraction

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
· **Respiratory protection:** Not required.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:** Goggles recommended during refilling.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Fluid
Color:	According to product specification
· **Odor:**	Characteristic

(Contd. on page 4)

(Contd. of page 3)

· **Odor threshold:**	Not determined.
· **pH-value:**	N/A
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Water:	84.4 %
VOC content:	0.00 %
Solids content:	14.8 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

(Contd. on page 5)

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11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product is not subject to classification according to internally approved calculation methods for preparations:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
7722-84-1	hydrogen peroxide solution	3

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:** N/A
· **Other information:** N/A
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Must be specially treated adhering to official regulations.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**
· **ADR, ADN, IMDG, IATA** not regulated

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· **UN proper shipping name** · **ADR, ADN, IMDG, IATA**	not regulated
· **Transport hazard class(es)** · **ADR, ADN, IMDG, IATA** · **Class**	not regulated
· **Packing group** · **ADR, IMDG, IATA**	not regulated
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	not regulated

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**

7722-84-1	hydrogen peroxide solution

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

1330-43-4	boric acid, disodium salt	I (oral)
10043-35-3	boric acid	I (oral)

· **TLV (Threshold Limit Value established by ACGIH)**

1330-43-4	boric acid, disodium salt	A4
10043-35-3	boric acid	A4

(Contd. on page 7)

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7722-84-1	hydrogen peroxide solution	A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information provided in this Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. Akoya Biosciences, Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

· **Date of preparation / last revision** 03/13/2019 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit

1 Identification

Product identifier Opal Polaris 480 OP-001000

· ***Trade name: Opal Polaris 480***

· ***Product number: OP-001000***

· ***Application of the substance / the mixture*** Laboratory chemicals Kit Components

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Akoya Biosciences, Inc.
100 Campus Drive, 6th Floor
Marlborough. MA 01752 USA

· ***Information department:***
US Technical Support
855.896.8401

· ***Emergency telephone number:***
If inside USA, call CHEMTREC at 1-800-424-9300
If outside USA, call CHEMTREC at 1-703-527-3887

2 Hazard(s) identification

· ***Classification of the substance or mixture***

Acute Tox. 3 H301 Toxic if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

· ***Additional information:*** *For the wording of the listed H phrases refer to section 16.*

· ***Label elements***

· ***GHS label elements*** *The product is classified and labeled according to the Globally Harmonized System (GHS).*

· ***Hazard pictograms***

GHS06 GHS07

· ***Signal word*** *Danger*

· ***Hazard-determining components of labeling:***
4-IODOPHENYLBORONIC ACID

· ***Hazard statements***
Toxic if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

· ***Precautionary statements***
If swallowed: Immediately call a poison center/doctor.
Specific treatment (see on this label).
Rinse mouth.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Take off contaminated clothing and wash it before reuse.
Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

(Contd. of page 1)

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 0
Reactivity = 0

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
5122-99-6	4-IODOPHENYLBORONIC ACID	75-100%

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** Do not induce vomiting; immediately call for medical help.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Contd. on page 3)

(Contd. of page 2)

· **Protective Action Criteria for Chemicals**

· **PAC-1:**
None of the ingredients is listed.

· **PAC-2:**
None of the ingredients is listed.

· **PAC-3:**
None of the ingredients is listed.

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and containers:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from food and beverages.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· **Respiratory protection:**
In case of brief or low exposure use an approved cartridge filter. In case of intensive or longer exposure use SCBA.
Suitable respiratory protective device recommended.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

(Contd. on page 4)

(Contd. of page 3)

· ***Material of gloves***
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· ***Penetration time of glove material***
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· ***Eye protection:***

Tightly sealed goggles

9 Physical and chemical properties

· ***Information on basic physical and chemical properties***	
· ***General Information***	
· ***Appearance:***	
Form:	*Solid*
Color:	*According to product specification*
· ***Odor:***	*Characteristic*
· ***Odor threshold:***	*Not determined.*
· ***pH-value:***	*N/A*
· ***Change in condition***	
Melting point/Melting range:	*Undetermined.*
Boiling point/Boiling range:	*Undetermined.*
· ***Flash point:***	*Not applicable.*
· ***Flammability (solid, gaseous):***	*Not determined.*
· ***Decomposition temperature:***	*Not determined.*
· ***Auto igniting:***	*Product is not selfigniting.*
· ***Danger of explosion:***	*Product does not present an explosion hazard.*
· ***Explosion limits:***	
Lower:	*Not determined.*
Upper:	*Not determined.*
· ***Vapor pressure:***	*Not applicable.*
· ***Density:***	*Not determined.*
· ***Relative density***	*Not determined.*
· ***Vapor density***	*Not applicable.*
· ***Evaporation rate***	*Not applicable.*
· ***Solubility in / Miscibility with***	
Water:	*Insoluble.*
· ***Partition coefficient (n-octanol/water):***	*Not determined.*
· ***Viscosity:***	
Dynamic:	*Not applicable.*
Kinematic:	*Not applicable.*

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· **Solvent content:**	
VOC content:	0.00 %
Solids content:	100.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:** N/A
· **Other information:** N/A
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.

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· ***vPvB:*** *Not applicable.*
· ***Other adverse effects*** *No further relevant information available.*

13 Disposal considerations

· ***Waste treatment methods***
· ***Recommendation:*** *Must be specially treated adhering to official regulations.*

· ***Uncleaned packagings:***
· ***Recommendation:*** *Disposal must be made according to official regulations.*

14 Transport information

· ***UN-Number***	
· ***ADR***	*UN3287*
· ***IMDG, IATA***	*UN3288*
· ***UN proper shipping name***	
· ***ADR***	*3287 TOXIC LIQUID, INORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID)*
· ***IMDG, IATA***	*TOXIC SOLID, INORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID)*
· ***Transport hazard class(es)***	
· ***ADR, IMDG, IATA***	
· ***Class***	*6.1 Toxic substances*
· ***Label***	*6.1*
· ***Packing group***	
· ***ADR, IMDG, IATA***	*III*
· ***Environmental hazards:***	*Not applicable.*
· ***Special precautions for user***	*Warning: Toxic substances*
· ***Danger code (Kemler):***	*60*
· ***EMS Number:***	*F-A,S-A*
· ***Stowage Category***	*A*
· ***Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code***	*Not applicable.*
· ***Transport/Additional information:***	
· ***Quantity limitations***	*On passenger aircraft/rail: 100 kg* *On cargo aircraft only: 200 kg*
· ***ADR***	
· ***Excepted quantities (EQ)***	*Code: E1* *Maximum net quantity per inner packaging: 30 g* *Maximum net quantity per outer packaging: 1000 g*

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· ***IMDG***	
· ***Limited quantities (LQ)***	*5 kg*
· ***Excepted quantities (EQ)***	*Code: E1* *Maximum net quantity per inner packaging: 30 g* *Maximum net quantity per outer packaging: 1000 g*
· ***UN "Model Regulation":***	*UN 3287 TOXIC LIQUID, INORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID), 6.1, III*

15 Regulatory information

· ***Safety, health and environmental regulations/legislation specific for the substance or mixture***
· ***Sara***

· ***Section 355 (extremely hazardous substances):***
None of the ingredients is listed.

· ***Section 313 (Specific toxic chemical listings):***
None of the ingredients is listed.

· ***TSCA (Toxic Substances Control Act):***
None of the ingredients is listed.

· ***TSCA new (21st Century Act): (Substances not listed)***

5122-99-6	*4-IODOPHENYLBORONIC ACID*

· ***Hazardous Air Pollutants***
None of the ingredients is listed.

· ***Proposition 65***

· ***Chemicals known to cause cancer:***
None of the ingredients is listed.

· ***Chemicals known to cause reproductive toxicity for females:***
None of the ingredients is listed.

· ***Chemicals known to cause reproductive toxicity for males:***
None of the ingredients is listed.

· ***Chemicals known to cause developmental toxicity:***
None of the ingredients is listed.

· ***Carcinogenic categories***

· ***EPA (Environmental Protection Agency)***
None of the ingredients is listed.

· ***TLV (Threshold Limit Value established by ACGIH)***
None of the ingredients is listed.

· ***NIOSH-Ca (National Institute for Occupational Safety and Health)***
None of the ingredients is listed.

· ***Chemical safety assessment:*** *A Chemical Safety Assessment has not been carried out.*

16 Other information

The information provided in this Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be

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considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. Akoya Biosciences, Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

· ***Date of preparation / last revision*** *03/13/2019 / -*

· ***Abbreviations and acronyms:***

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 3: Acute toxicity – Category 3
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

1 Identification

Product identifier

· ***Trade name: Opal 520 Reagent***

· ***Product number: OP-001001***

· ***Application of the substance / the mixture Laboratory chemicals***

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Akoya Biosciences, Inc.
100 Campus Drive, 6th Floor
Marlborough. MA 01752 USA

· ***Information department:***
US Technical Support
855.896.8401

· ***Emergency telephone number:***
If inside USA, call CHEMTREC at 1-800-424-9300
If outside USA, call CHEMTREC at 1-703-527-3887

2 Hazard(s) identification

· ***Classification of the substance or mixture***

Acute Tox. 3 H301 Toxic if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

· ***Additional information:*** *For the wording of the listed H phrases refer to section 16.*

· ***Label elements***

· ***GHS label elements*** *The product is classified and labeled according to the Globally Harmonized System (GHS).*

· ***Hazard pictograms***

GHS06 GHS07

· ***Signal word*** *Danger*

· ***Hazard-determining components of labeling:***
4-IODOPHENYLBORONIC ACID

· ***Hazard statements***
Toxic if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

· ***Precautionary statements***
If swallowed: Immediately call a poison center/doctor.
Specific treatment (see on this label).
Rinse mouth.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Take off contaminated clothing and wash it before reuse.
Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

(Contd. of page 1)

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 1
Reactivity = 0

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
5122-99-6	4-IODOPHENYLBORONIC ACID	75-100%

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** Do not induce vomiting; immediately call for medical help.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Contd. on page 3)

(Contd. of page 2)

· ***Protective Action Criteria for Chemicals***

· ***PAC-1:***
None of the ingredients is listed.

· ***PAC-2:***
None of the ingredients is listed.

· ***PAC-3:***
None of the ingredients is listed.

7 Handling and storage

· ***Handling:***
· ***Precautions for safe handling***
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
· ***Information about protection against explosions and fires:*** *No special measures required.*

· ***Conditions for safe storage, including any incompatibilities***
· ***Storage:***
· ***Requirements to be met by storerooms and containers:*** *No special requirements.*
· ***Information about storage in one common storage facility:*** *Not required.*
· ***Further information about storage conditions:*** *Keep receptacle tightly sealed.*
· ***Specific end use(s)*** *No further relevant information available.*

8 Exposure controls/personal protection

· ***Additional information about design of technical systems:*** *No further data; see item 7.*

· ***Control parameters***
· ***Components with limit values that require monitoring at the workplace:***
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· ***Exposure controls***
· ***Personal protective equipment:***
· ***General protective and hygienic measures:***
Keep away from food and beverages.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· ***Respiratory protection:***
In case of brief or low exposure use an approved cartridge filter. In case of intensive or longer exposure use SCBA.
Suitable respiratory protective device recommended.
· ***Protection of hands:***

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

(Contd. on page 4)

(Contd. of page 3)

· ***Material of gloves***
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· ***Penetration time of glove material***
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· ***Eye protection:***

Tightly sealed goggles

9 Physical and chemical properties

· ***Information on basic physical and chemical properties***	
· ***General Information***	
· ***Appearance:***	
Form:	*Solid*
Color:	*According to product specification*
· ***Odor:***	*Characteristic*
· ***Odor threshold:***	*Not determined.*
· ***pH-value:***	*N/A*
· ***Change in condition***	
Melting point/Melting range:	*Undetermined.*
Boiling point/Boiling range:	*189 °C (372.2 °F)*
· ***Flash point:***	*95 °C (203 °F)*
· ***Flammability (solid, gaseous):***	*Not determined.*
· ***Decomposition temperature:***	*Not determined.*
· ***Auto igniting:***	*Product is not selfigniting.*
· ***Danger of explosion:***	*Product does not present an explosion hazard.*
· ***Explosion limits:***	
Lower:	*Not determined.*
Upper:	*Not determined.*
· ***Vapor pressure:***	*Not applicable.*
· ***Density:***	*Not determined.*
· ***Relative density***	*Not determined.*
· ***Vapor density***	*Not applicable.*
· ***Evaporation rate***	*Not applicable.*
· ***Solubility in / Miscibility with***	
Water:	*Insoluble.*
· ***Partition coefficient (n-octanol/water):***	*Not determined.*
· ***Viscosity:***	
Dynamic:	*Not applicable.*
Kinematic:	*Not applicable.*

(Contd. on page 5)

(Contd. of page 4)

· ***Solvent content:***	
VOC content:	*0.00 %*
Solids content:	*100.0 %*
· ***Other information***	*No further relevant information available.*

10 Stability and reactivity

· ***Reactivity*** *No further relevant information available.*
· ***Chemical stability***
· ***Thermal decomposition / conditions to be avoided:*** *No decomposition if used according to specifications.*
· ***Possibility of hazardous reactions*** *No dangerous reactions known.*
· ***Conditions to avoid*** *No further relevant information available.*
· ***Incompatible materials:*** *No further relevant information available.*
· ***Hazardous decomposition products:*** *No dangerous decomposition products known.*

11 Toxicological information

· ***Information on toxicological effects***
· ***Acute toxicity:***
· ***Primary irritant effect:***
· ***on the skin:*** *Irritant to skin and mucous membranes.*
· ***on the eye:*** *Irritating effect.*
· ***Sensitization:*** *No sensitizing effects known.*
· ***Additional toxicological information:***
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Irritant

· ***Carcinogenic categories***

· ***IARC (International Agency for Research on Cancer)***
None of the ingredients is listed.

· ***NTP (National Toxicology Program)***
None of the ingredients is listed.

· ***OSHA-Ca (Occupational Safety & Health Administration)***
None of the ingredients is listed.

12 Ecological information

· ***Toxicity***
· ***Aquatic toxicity:*** *No further relevant information available.*
· ***Persistence and degradability*** *No further relevant information available.*
· ***Behavior in environmental systems:***
· ***Bioaccumulative potential*** *No further relevant information available.*
· ***Mobility in soil*** *No further relevant information available.*
· ***Ecotoxical effects:*** *N/A*
· ***Other information:*** *N/A*
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*

(Contd. on page 6)

(Contd. of page 5)

· ***vPvB:*** *Not applicable.*
· ***Other adverse effects*** *No further relevant information available.*

13 Disposal considerations

· ***Waste treatment methods***
· ***Recommendation:*** *Must be specially treated adhering to official regulations.*

· ***Uncleaned packagings:***
· ***Recommendation:*** *Disposal must be made according to official regulations.*

14 Transport information

· ***UN-Number***	
· ***ADR, IMDG, IATA***	*UN2811*
· ***UN proper shipping name***	
· ***ADR***	*2811 TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID)*
· ***IMDG, IATA***	*TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID)*
· ***Transport hazard class(es)***	
· ***ADR, IMDG, IATA***	
· ***Class***	*6.1 Toxic substances*
· ***Label***	*6.1*
· ***Packing group***	
· ***ADR, IMDG, IATA***	*III*
· ***Environmental hazards:***	*Not applicable.*
· ***Special precautions for user***	*Warning: Toxic substances*
· ***Danger code (Kemler):***	*60*
· ***EMS Number:***	*F-A,S-A*
· ***Stowage Category***	*A*
· ***Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code***	*Not applicable.*
· ***Transport/Additional information:***	
· ***Quantity limitations***	*On passenger aircraft/rail: 100 kg* *On cargo aircraft only: 200 kg*
· ***ADR***	
· ***Excepted quantities (EQ)***	*Code: E1* *Maximum net quantity per inner packaging: 30 g* *Maximum net quantity per outer packaging: 1000 g*

(Contd. on page 7)

(Contd. of page 6)

· **IMDG**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **UN "Model Regulation":**	UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID), 6.1, III

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**
None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**
None of the ingredients is listed.

· **TSCA new (21st Century Act): (Substances not listed)**

5122-99-6	4-IODOPHENYLBORONIC ACID

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information provided in this Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be

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considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. Akoya Biosciences, Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

· ***Date of preparation / last revision*** *03/13/2019 / -*

· ***Abbreviations and acronyms:***

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 3: Acute toxicity – Category 3
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

1 Identification

Product identifier

· ***Trade name: Opal 570 Reagent***

· ***Product number: OP-001003***

· ***Application of the substance / the mixture Laboratory chemicals***

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Akoya Biosciences, Inc.
100 Campus Drive, 6th Floor
Marlborough. MA 01752 USA

· ***Information department:***
US Technical Support
855.896.8401

· ***Emergency telephone number:***
If inside USA, call CHEMTREC at 1-800-424-9300
If outside USA, call CHEMTREC at 1-703-527-3887

2 Hazard(s) identification

· ***Classification of the substance or mixture***

Acute Tox. 3 H301 Toxic if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

· ***Additional information:*** *For the wording of the listed H phrases refer to section 16.*

· ***Label elements***

· ***GHS label elements*** *The product is classified and labeled according to the Globally Harmonized System (GHS).*

· ***Hazard pictograms***

GHS06 GHS07

· ***Signal word*** *Danger*

· ***Hazard-determining components of labeling:***
4-IODOPHENYLBORONIC ACID

· ***Hazard statements***
Toxic if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

· ***Precautionary statements***
If swallowed: Immediately call a poison center/doctor.
Specific treatment (see on this label).
Rinse mouth.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Take off contaminated clothing and wash it before reuse.
Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

(Contd. of page 1)

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 1
Reactivity = 0

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
5122-99-6	4-IODOPHENYLBORONIC ACID	75-100%

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** Do not induce vomiting; immediately call for medical help.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Contd. on page 3)

(Contd. of page 2)

· ***Protective Action Criteria for Chemicals***

· ***PAC-1:***
None of the ingredients is listed.

· ***PAC-2:***
None of the ingredients is listed.

· ***PAC-3:***
None of the ingredients is listed.

7 Handling and storage

· ***Handling:***
· ***Precautions for safe handling***
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
· ***Information about protection against explosions and fires:*** *No special measures required.*

· ***Conditions for safe storage, including any incompatibilities***
· ***Storage:***
· ***Requirements to be met by storerooms and containers:*** *No special requirements.*
· ***Information about storage in one common storage facility:*** *Not required.*
· ***Further information about storage conditions:*** *Keep receptacle tightly sealed.*
· ***Specific end use(s)*** *No further relevant information available.*

8 Exposure controls/personal protection

· ***Additional information about design of technical systems:*** *No further data; see item 7.*

· ***Control parameters***
· ***Components with limit values that require monitoring at the workplace:***
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· ***Exposure controls***
· ***Personal protective equipment:***
· ***General protective and hygienic measures:***
Keep away from food and beverages.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· ***Respiratory protection:***
In case of brief or low exposure use an approved cartridge filter. In case of intensive or longer exposure use SCBA.
Suitable respiratory protective device recommended.
· ***Protection of hands:***

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

(Contd. on page 4)

(Contd. of page 3)

· ***Material of gloves***
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· ***Penetration time of glove material***
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· ***Eye protection:***

Tightly sealed goggles

9 Physical and chemical properties

· ***Information on basic physical and chemical properties***	
· ***General Information***	
· ***Appearance:***	
Form:	*Solid*
Color:	*According to product specification*
· ***Odor:***	*Characteristic*
· ***Odor threshold:***	*Not determined.*
· ***pH-value:***	*N/A*
· ***Change in condition***	
Melting point/Melting range:	*Undetermined.*
Boiling point/Boiling range:	*189 °C (372.2 °F)*
· ***Flash point:***	*95 °C (203 °F)*
· ***Flammability (solid, gaseous):***	*Not determined.*
· ***Decomposition temperature:***	*Not determined.*
· ***Auto igniting:***	*Product is not selfigniting.*
· ***Danger of explosion:***	*Product does not present an explosion hazard.*
· ***Explosion limits:***	
Lower:	*Not determined.*
Upper:	*Not determined.*
· ***Vapor pressure:***	*Not applicable.*
· ***Density:***	*Not determined.*
· ***Relative density***	*Not determined.*
· ***Vapor density***	*Not applicable.*
· ***Evaporation rate***	*Not applicable.*
· ***Solubility in / Miscibility with***	
Water:	*Soluble.*
· ***Partition coefficient (n-octanol/water):***	*Not determined.*
· ***Viscosity:***	
Dynamic:	*Not applicable.*
Kinematic:	*Not applicable.*

(Contd. on page 5)

(Contd. of page 4)

· **Solvent content:**	
VOC content:	0.00 %
Solids content:	100.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:** N/A
· **Other information:** N/A
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.

(Contd. on page 6)

(Contd. of page 5)

· ***vPvB:*** *Not applicable.*
· ***Other adverse effects*** *No further relevant information available.*

13 Disposal considerations

· ***Waste treatment methods***
· ***Recommendation:*** *Must be specially treated adhering to official regulations.*

· ***Uncleaned packagings:***
· ***Recommendation:*** *Disposal must be made according to official regulations.*
· ***Recommended cleansing agent:*** *Water, if necessary with cleansing agents.*

14 Transport information

· ***UN-Number***	
· ***ADR, IMDG, IATA***	*UN2811*
· ***UN proper shipping name***	
· ***ADR***	*2811 TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID)*
· ***IMDG, IATA***	*TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID)*
· ***Transport hazard class(es)***	
· ***ADR, IMDG, IATA***	
· ***Class***	*6.1 Toxic substances*
· ***Label***	*6.1*
· ***Packing group***	
· ***ADR, IMDG, IATA***	*III*
· ***Environmental hazards:***	*Not applicable.*
· ***Special precautions for user***	*Warning: Toxic substances*
· ***Danger code (Kemler):***	*60*
· ***EMS Number:***	*F-A,S-A*
· ***Stowage Category***	*A*
· ***Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code***	*Not applicable.*
· ***Transport/Additional information:***	
· ***Quantity limitations***	*On passenger aircraft/rail: 100 kg* *On cargo aircraft only: 200 kg*
· ***ADR***	
· ***Excepted quantities (EQ)***	*Code: E1* *Maximum net quantity per inner packaging: 30 g* *Maximum net quantity per outer packaging: 1000 g*

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· **IMDG**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **UN "Model Regulation":**	UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID), 6.1, III

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**
None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**
None of the ingredients is listed.

· **TSCA new (21st Century Act): (Substances not listed)**

5122-99-6	4-IODOPHENYLBORONIC ACID

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information provided in this Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be

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considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. Akoya Biosciences, Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

· ***Date of preparation / last revision*** *03/13/2019 / -*

· ***Abbreviations and acronyms:***

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 3: Acute toxicity – Category 3
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

US

1 Identification

Product identifier

· ***Trade name: Opal 620 Reagent***

· ***Product number: OP-001004***

· ***Application of the substance / the mixture Laboratory chemicals***

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Akoya Biosciences, Inc.
100 Campus Drive, 6th Floor
Marlborough. MA 01752 USA

· ***Information department:***
US Technical Support
855.896.8401

· ***Emergency telephone number:***
If inside USA, call CHEMTREC at 1-800-424-9300
If outside USA, call CHEMTREC at 1-703-527-3887

2 Hazard(s) identification

· ***Classification of the substance or mixture***

Acute Tox. 3 H301 Toxic if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

· ***Additional information:*** *For the wording of the listed H phrases refer to section 16.*

· ***Label elements***

· ***GHS label elements*** *The product is classified and labeled according to the Globally Harmonized System (GHS).*

· ***Hazard pictograms***

GHS06 GHS07

· ***Signal word*** *Danger*

· ***Hazard-determining components of labeling:***
4-IODOPHENYLBORONIC ACID

· ***Hazard statements***
Toxic if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

· ***Precautionary statements***
If swallowed: Immediately call a poison center/doctor.
Specific treatment (see on this label).
Rinse mouth.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Take off contaminated clothing and wash it before reuse.
Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

(Contd. of page 1)

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 1
Reactivity = 0

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
5122-99-6	4-IODOPHENYLBORONIC ACID	75-100%

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** Do not induce vomiting; immediately call for medical help.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Contd. on page 3)

(Contd. of page 2)

· ***Protective Action Criteria for Chemicals***

· ***PAC-1:***
None of the ingredients is listed.

· ***PAC-2:***
None of the ingredients is listed.

· ***PAC-3:***
None of the ingredients is listed.

7 Handling and storage

· ***Handling:***
· ***Precautions for safe handling***
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
· ***Information about protection against explosions and fires:*** *No special measures required.*

· ***Conditions for safe storage, including any incompatibilities***
· ***Storage:***
· ***Requirements to be met by storerooms and containers:*** *No special requirements.*
· ***Information about storage in one common storage facility:*** *Not required.*
· ***Further information about storage conditions:*** *Keep receptacle tightly sealed.*
· ***Specific end use(s)*** *No further relevant information available.*

8 Exposure controls/personal protection

· ***Additional information about design of technical systems:*** *No further data; see item 7.*

· ***Control parameters***
· ***Components with limit values that require monitoring at the workplace:***
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· ***Exposure controls***
· ***Personal protective equipment:***
· ***General protective and hygienic measures:***
Keep away from food and beverages.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· ***Respiratory protection:***
In case of brief or low exposure use an approved cartridge filter. In case of intensive or longer exposure use SCBA.
Suitable respiratory protective device recommended.
· ***Protection of hands:***

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

(Contd. on page 4)

(Contd. of page 3)

· ***Material of gloves***
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· ***Penetration time of glove material***
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· ***Eye protection:***

Tightly sealed goggles

9 Physical and chemical properties

· ***Information on basic physical and chemical properties***	
· ***General Information***	
· ***Appearance:***	
Form:	*Solid*
Color:	*According to product specification*
· ***Odor:***	*Characteristic*
· ***Odor threshold:***	*Not determined.*
· ***pH-value:***	*N/A*
· ***Change in condition***	
Melting point/Melting range:	*Undetermined.*
Boiling point/Boiling range:	*189 °C (372.2 °F)*
· ***Flash point:***	*95 °C (203 °F)*
· ***Flammability (solid, gaseous):***	*Not determined.*
· ***Decomposition temperature:***	*Not determined.*
· ***Auto igniting:***	*Product is not selfigniting.*
· ***Danger of explosion:***	*Product does not present an explosion hazard.*
· ***Explosion limits:***	
Lower:	*Not determined.*
Upper:	*Not determined.*
· ***Vapor pressure:***	*Not applicable.*
· ***Density:***	*Not determined.*
· ***Relative density***	*Not determined.*
· ***Vapor density***	*Not applicable.*
· ***Evaporation rate***	*Not applicable.*
· ***Solubility in / Miscibility with***	
Water:	*Insoluble.*
· ***Partition coefficient (n-octanol/water):***	*Not determined.*
· ***Viscosity:***	
Dynamic:	*Not applicable.*
Kinematic:	*Not applicable.*

(Contd. on page 5)

(Contd. of page 4)

· ***Solvent content:***	
VOC content:	*0.00 %*
Solids content:	*100.0 %*
· ***Other information***	*No further relevant information available.*

10 Stability and reactivity

· ***Reactivity*** *No further relevant information available.*
· ***Chemical stability***
· ***Thermal decomposition / conditions to be avoided:*** *No decomposition if used according to specifications.*
· ***Possibility of hazardous reactions*** *No dangerous reactions known.*
· ***Conditions to avoid*** *No further relevant information available.*
· ***Incompatible materials:*** *No further relevant information available.*
· ***Hazardous decomposition products:*** *No dangerous decomposition products known.*

11 Toxicological information

· ***Information on toxicological effects***
· ***Acute toxicity:***
· ***Primary irritant effect:***
· ***on the skin:*** *Irritant to skin and mucous membranes.*
· ***on the eye:*** *Irritating effect.*
· ***Sensitization:*** *No sensitizing effects known.*
· ***Additional toxicological information:***
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Irritant

· ***Carcinogenic categories***

· ***IARC (International Agency for Research on Cancer)***
None of the ingredients is listed.

· ***NTP (National Toxicology Program)***
None of the ingredients is listed.

· ***OSHA-Ca (Occupational Safety & Health Administration)***
None of the ingredients is listed.

12 Ecological information

· ***Toxicity***
· ***Aquatic toxicity:*** *No further relevant information available.*
· ***Persistence and degradability*** *No further relevant information available.*
· ***Behavior in environmental systems:***
· ***Bioaccumulative potential*** *No further relevant information available.*
· ***Mobility in soil*** *No further relevant information available.*
· ***Ecotoxical effects:*** *N/A*
· ***Other information:*** *N/A*
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*

(Contd. on page 6)

(Contd. of page 5)

· ***vPvB:*** *Not applicable.*
· ***Other adverse effects*** *No further relevant information available.*

13 Disposal considerations

· ***Waste treatment methods***
· ***Recommendation:*** *Must be specially treated adhering to official regulations.*

· ***Uncleaned packagings:***
· ***Recommendation:*** *Disposal must be made according to official regulations.*

14 Transport information

· ***UN-Number***	
· ***ADR, IMDG, IATA***	*UN2811*
· ***UN proper shipping name***	
· ***ADR***	*2811 TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID)*
· ***IMDG, IATA***	*TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID)*
· ***Transport hazard class(es)***	
· ***ADR, IMDG, IATA***	
· ***Class***	*6.1 Toxic substances*
· ***Label***	*6.1*
· ***Packing group***	
· ***ADR, IMDG, IATA***	*III*
· ***Environmental hazards:***	*Not applicable.*
· ***Special precautions for user***	*Warning: Toxic substances*
· ***Danger code (Kemler):***	*60*
· ***EMS Number:***	*F-A,S-A*
· ***Stowage Category***	*A*
· ***Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code***	*Not applicable.*
· ***Transport/Additional information:***	
· ***Quantity limitations***	*On passenger aircraft/rail: 100 kg* *On cargo aircraft only: 200 kg*
· ***ADR***	
· ***Excepted quantities (EQ)***	*Code: E1* *Maximum net quantity per inner packaging: 30 g* *Maximum net quantity per outer packaging: 1000 g*

(Contd. on page 7)

(Contd. of page 6)

· **IMDG**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **UN "Model Regulation":**	UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID), 6.1, III

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**
None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**
None of the ingredients is listed.

· **TSCA new (21st Century Act): (Substances not listed)**

5122-99-6	4-IODOPHENYLBORONIC ACID

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information provided in this Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be

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considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. Akoya Biosciences, Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

· ***Date of preparation / last revision*** *03/13/2019 / -*

· ***Abbreviations and acronyms:***

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 3: Acute toxicity – Category 3
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

1 Identification

Product identifier

· ***Trade name: Opal 690 Reagent***

· ***Product number: OP-001006***

· ***Application of the substance / the mixture Laboratory chemicals***

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Akoya Biosciences, Inc.
100 Campus Drive, 6th Floor
Marlborough. MA 01752 USA

· ***Information department:***
US Technical Support
855.896.8401

· ***Emergency telephone number:***
If inside USA, call CHEMTREC at 1-800-424-9300
If outside USA, call CHEMTREC at 1-703-527-3887

2 Hazard(s) identification

· ***Classification of the substance or mixture***

Acute Tox. 3 H301 Toxic if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

· ***Additional information:*** *For the wording of the listed H phrases refer to section 16.*

· ***Label elements***

· ***GHS label elements*** *The product is classified and labeled according to the Globally Harmonized System (GHS).*

· ***Hazard pictograms***

GHS06 GHS07

· ***Signal word*** *Danger*

· ***Hazard-determining components of labeling:***
4-IODOPHENYLBORONIC ACID

· ***Hazard statements***
Toxic if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

· ***Precautionary statements***
If swallowed: Immediately call a poison center/doctor.
Specific treatment (see on this label).
Rinse mouth.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Take off contaminated clothing and wash it before reuse.
Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

(Contd. of page 1)

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 0
Reactivity = 0

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
5122-99-6	4-IODOPHENYLBORONIC ACID	75-100%

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** Do not induce vomiting; immediately call for medical help.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Contd. on page 3)

(Contd. of page 2)

· ***Protective Action Criteria for Chemicals***

· ***PAC-1:***
None of the ingredients is listed.

· ***PAC-2:***
None of the ingredients is listed.

· ***PAC-3:***
None of the ingredients is listed.

7 Handling and storage

· ***Handling:***
· ***Precautions for safe handling***
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
· ***Information about protection against explosions and fires:*** *No special measures required.*

· ***Conditions for safe storage, including any incompatibilities***
· ***Storage:***
· ***Requirements to be met by storerooms and containers:*** *No special requirements.*
· ***Information about storage in one common storage facility:*** *Not required.*
· ***Further information about storage conditions:*** *Keep receptacle tightly sealed.*
· ***Specific end use(s)*** *No further relevant information available.*

8 Exposure controls/personal protection

· ***Additional information about design of technical systems:*** *No further data; see item 7.*

· ***Control parameters***
· ***Components with limit values that require monitoring at the workplace:***
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· ***Exposure controls***
· ***Personal protective equipment:***
· ***General protective and hygienic measures:***
Keep away from food and beverages.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· ***Respiratory protection:***
In case of brief or low exposure use an approved cartridge filter. In case of intensive or longer exposure use SCBA.
Suitable respiratory protective device recommended.
· ***Protection of hands:***

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

(Contd. on page 4)

(Contd. of page 3)

· ***Material of gloves***
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· ***Penetration time of glove material***
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· ***Eye protection:***

Tightly sealed goggles

9 Physical and chemical properties

· ***Information on basic physical and chemical properties***	
· ***General Information***	
· ***Appearance:***	
Form:	*Solid*
Color:	*According to product specification*
· ***Odor:***	*Characteristic*
· ***Odor threshold:***	*Not determined.*
· ***pH-value:***	*N/A*
· ***Change in condition***	
Melting point/Melting range:	*Undetermined.*
Boiling point/Boiling range:	*Undetermined.*
· ***Flash point:***	*Not applicable.*
· ***Flammability (solid, gaseous):***	*Not determined.*
· ***Decomposition temperature:***	*Not determined.*
· ***Auto igniting:***	*Product is not selfigniting.*
· ***Danger of explosion:***	*Product does not present an explosion hazard.*
· ***Explosion limits:***	
Lower:	*Not determined.*
Upper:	*Not determined.*
· ***Vapor pressure:***	*Not applicable.*
· ***Density:***	*Not determined.*
· ***Relative density***	*Not determined.*
· ***Vapor density***	*Not applicable.*
· ***Evaporation rate***	*Not applicable.*
· ***Solubility in / Miscibility with***	
Water:	*Soluble.*
· ***Partition coefficient (n-octanol/water):***	*Not determined.*
· ***Viscosity:***	
Dynamic:	*Not applicable.*
Kinematic:	*Not applicable.*

(Contd. on page 5)

(Contd. of page 4)

· ***Solvent content:***	
VOC content:	*0.00 %*
Solids content:	*100.0 %*
· ***Other information***	*No further relevant information available.*

10 Stability and reactivity

· ***Reactivity*** *No further relevant information available.*
· ***Chemical stability***
· ***Thermal decomposition / conditions to be avoided:*** *No decomposition if used according to specifications.*
· ***Possibility of hazardous reactions*** *No dangerous reactions known.*
· ***Conditions to avoid*** *No further relevant information available.*
· ***Incompatible materials:*** *No further relevant information available.*
· ***Hazardous decomposition products:*** *No dangerous decomposition products known.*

11 Toxicological information

· ***Information on toxicological effects***
· ***Acute toxicity:***
· ***Primary irritant effect:***
· ***on the skin:*** *Irritant to skin and mucous membranes.*
· ***on the eye:*** *Irritating effect.*
· ***Sensitization:*** *No sensitizing effects known.*
· ***Additional toxicological information:***
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Irritant

· ***Carcinogenic categories***

· ***IARC (International Agency for Research on Cancer)***
None of the ingredients is listed.

· ***NTP (National Toxicology Program)***
None of the ingredients is listed.

· ***OSHA-Ca (Occupational Safety & Health Administration)***
None of the ingredients is listed.

12 Ecological information

· ***Toxicity***
· ***Aquatic toxicity:*** *No further relevant information available.*
· ***Persistence and degradability*** *No further relevant information available.*
· ***Behavior in environmental systems:***
· ***Bioaccumulative potential*** *No further relevant information available.*
· ***Mobility in soil*** *No further relevant information available.*
· ***Ecotoxical effects:*** *N/A*
· ***Other information:*** *N/A*
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*

(Contd. on page 6)

(Contd. of page 5)

· ***vPvB:*** *Not applicable.*
· ***Other adverse effects*** *No further relevant information available.*

13 Disposal considerations

· ***Waste treatment methods***
· ***Recommendation:*** *Must be specially treated adhering to official regulations.*

· ***Uncleaned packagings:***
· ***Recommendation:*** *Disposal must be made according to official regulations.*
· ***Recommended cleansing agent:*** *Water, if necessary with cleansing agents.*

14 Transport information

· ***UN-Number***	
· ***ADR, IMDG, IATA***	*UN2811*
· ***UN proper shipping name***	
· ***ADR***	*2811 TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID)*
· ***IMDG, IATA***	*TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID)*
· ***Transport hazard class(es)***	
· ***ADR, IMDG, IATA***	
· ***Class***	*6.1 Toxic substances*
· ***Label***	*6.1*
· ***Packing group***	
· ***ADR, IMDG, IATA***	*III*
· ***Environmental hazards:***	*Not applicable.*
· ***Special precautions for user***	*Warning: Toxic substances*
· ***Danger code (Kemler):***	*60*
· ***EMS Number:***	*F-A,S-A*
· ***Stowage Category***	*A*
· ***Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code***	*Not applicable.*
· ***Transport/Additional information:***	
· ***Quantity limitations***	*On passenger aircraft/rail: 100 kg* *On cargo aircraft only: 200 kg*
· ***ADR***	
· ***Excepted quantities (EQ)***	*Code: E1* *Maximum net quantity per inner packaging: 30 g* *Maximum net quantity per outer packaging: 1000 g*

(Contd. on page 7)

(Contd. of page 6)

· **IMDG**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **UN "Model Regulation":**	UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC ACID), 6.1, III

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**
None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**
None of the ingredients is listed.

· **TSCA new (21st Century Act): (Substances not listed)**

5122-99-6	4-IODOPHENYLBORONIC ACID

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information provided in this Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be

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considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. Akoya Biosciences, Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

· ***Date of preparation / last revision*** *03/13/2019 / -*

· ***Abbreviations and acronyms:***

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 3: Acute toxicity – Category 3
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

US

1 Identification

Product identifier

· ***Trade name: Opal TSA-DIG Reagent***

· ***Product number: OP-001007***

· ***CAS Number: 51-67-2***

· ***Application of the substance / the mixture Laboratory chemicals***

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Akoya Biosciences, Inc.
100 Campus Drive, 6th Floor
Marlborough. MA 01752 USA

· ***Information department:***
US Technical Support
855.896.8401

· ***Emergency telephone number:***
If inside USA, call CHEMTREC at 1-800-424-9300
If outside USA, call CHEMTREC at 1-703-527-3887

2 Hazard(s) identification

· ***Classification of the substance or mixture***

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

· ***Additional information:*** *For the wording of the listed H phrases refer to section 16.*

· ***Label elements***

· ***GHS label elements***

The substance is classified and labeled according to the Globally Harmonized System (GHS).

· ***Hazard pictograms***

GHS07

· ***Signal word*** *Warning*

· ***Hazard-determining components of labeling:***
4-Hydroxyphenylethylamine

· ***Hazard statements***
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

· ***Precautionary statements***
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves / eye protection / face protection.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Call a poison center/doctor if you feel unwell.
Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)

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· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 0
Reactivity = 0

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
51-67-2 4-Hydroxyphenylethylamine

4 First-aid measures

· **Description of first aid measures**
· **General information:** Immediately remove any clothing soiled by the product.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**
Substance is not listed.

(Contd. on page 3)

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· **PAC-2:**
Substance is not listed.

· **PAC-3:**
Substance is not listed.

7 Handling and storage

· **Handling:**
· **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and containers:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:** Not required.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from food and beverages.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· **Respiratory protection:**
In case of brief or low exposure use an approved cartridge filter. In case of intensive or longer exposure use SCBA.
Suitable respiratory protective device recommended.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 4)

(Contd. of page 3)

· **Eye protection:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Solid
Color:	Not determined.
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	N/A
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Product is not flammable.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water:	Insoluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
VOC content:	0.00 %
Solids content:	100.0 %
· **Other information**	No further relevant information available.

(Contd. on page 5)

(Contd. of page 4)

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
Substance is not listed.

· **NTP (National Toxicology Program)**
Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
Substance is not listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:** N/A
· **Other information:** N/A
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Must be specially treated adhering to official regulations.

(Contd. on page 6)

(Contd. of page 5)

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **ADR, ADN, IMDG, IATA**	not regulated
· **UN proper shipping name**	
· **ADR, ADN, IMDG, IATA**	not regulated
· **Transport hazard class(es)**	
· **ADR, ADN, IMDG, IATA**	
· **Class**	not regulated
· **Packing group**	
· **ADR, IMDG, IATA**	not regulated
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	not regulated

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**
Substance is not listed.

· **TSCA (Toxic Substances Control Act):**
Substance is not listed.

· **TSCA new (21st Century Act): (Substances not listed)**

51-67-2	4-Hydroxyphenylethylamine

· **Hazardous Air Pollutants**
Substance is not listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
Substance is not listed.

· **Chemicals known to cause reproductive toxicity for females:**
Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:**
Substance is not listed.

(Contd. on page 7)

(Contd. of page 6)

· **Chemicals known to cause developmental toxicity:**
Substance is not listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**
Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
Substance is not listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information provided in this Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. Akoya Biosciences, Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

· **Date of preparation / last revision** 03/13/2019 / -

· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

1 Identification

Product identifier

· ***Trade name: Spectral DAPI***

· ***Product number: FP1490A, FP1490***

· ***Application of the substance / the mixture Laboratory chemicals***

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Akoya Biosciences, Inc.
100 Campus Drive, 6th Floor
Marlborough. MA 01752 USA

· ***Information department:***
US Technical Support
855.896.8401

· ***Emergency telephone number:***
If inside USA, call CHEMTREC at 1-800-424-9300
If outside USA, call CHEMTREC at 1-703-527-3887

2 Hazard(s) identification

· ***Classification of the substance or mixture***
The product has been classified and is not hazadous according to the Globally Harmonized System (GHS).

· ***Label elements***
· ***GHS label elements*** *Void*
· ***Hazard pictograms*** *Void*
· ***Signal word*** *Void*
· ***Hazard statements*** *Void*
· ***Classification system:***
· ***NFPA ratings (scale 0 - 4)***

Health = 0
Fire = 0
Reactivity = 0

3 Composition/information on ingredients

· ***Chemical characterization: Mixtures***
· ***Description:*** *Mixture of the substances listed below with nonhazardous additions.*

· ***Dangerous components:*** *Void*

4 First-aid measures

· ***Description of first aid measures***
· ***General information:*** *No special measures required.*
· ***After inhalation:*** *Supply fresh air; consult doctor in case of complaints.*
· ***After skin contact:*** *If skin irritation continues, consult a doctor.*
· ***After eye contact:*** *Rinse opened eye for several minutes under running water.*
· ***After swallowing:*** *If symptoms persist consult doctor.*
· ***Information for doctor:***
· ***Most important symptoms and effects, both acute and delayed*** *No further relevant information available.*

(Contd. on page 2)

(Contd. of page 1)

· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:** Pick up mechanically.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**
None of the ingredients is listed.

· **PAC-2:**
None of the ingredients is listed.

· **PAC-3:**
None of the ingredients is listed.

7 Handling and storage

· **Handling:**
· **Precautions for safe handling** No special measures required.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and containers:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

(Contd. on page 3)

(Contd. of page 2)

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
· **Respiratory protection:** Not required.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:** Not required.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Fluid
Color:	According to product specification
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	N/A
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water:	Insoluble.

(Contd. on page 4)

(Contd. of page 3)

· **Partition coefficient (n-octanol/water):** Not determined.	
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
Water:	98.6 %
VOC content:	0.00 %
Solids content:	100.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product is not subject to classification according to internally approved calculation methods for preparations:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.

(Contd. on page 5)

(Contd. of page 4)

· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:** N/A
· **Other information:** N/A
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Must be specially treated adhering to official regulations.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number** · **ADR, ADN, IMDG, IATA**	not regulated
· **UN proper shipping name** · **ADR, ADN, IMDG, IATA**	not regulated
· **Transport hazard class(es)** · **ADR, ADN, IMDG, IATA** · **Class**	not regulated
· **Packing group** · **ADR, IMDG, IATA**	not regulated
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	not regulated

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**
None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

7732-18-5	Water

(Contd. on page 6)

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· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information provided in this Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. Akoya Biosciences, Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

· **Date of preparation / last revision** 03/13/2019 / -

· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit

1505 O'Brien Drive. Suite A1, Menlo Park, CA 94025 | 855.896.8401 | www.akoyabio.com | 100 Campus Drive, 6th Floor, Marlborough, MA 01752 USA

1 Identification

Product identifier

· ***Trade name: Antibody Diluent, 1X, 100mL***

· ***Product number: ARD1001EA***

· ***Application of the substance / the mixture Laboratory chemicals***

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Akoya Biosciences, Inc.
100 Campus Drive, 6th Floor
Marlborough. MA 01752 USA

· ***Information department:***
US Technical Support
855.896.8401

· ***Emergency telephone number:***
If inside USA, call CHEMTREC at 1-800-424-9300
If outside USA, call CHEMTREC at 1-703-527-3887

2 Hazard(s) identification

· ***Classification of the substance or mixture***
Skin Sens. 1 H317 May cause an allergic skin reaction.
· ***Additional information:*** *For the wording of the listed H phrases refer to section 16.*

· ***Label elements***
· ***GHS label elements*** *The product is classified and labeled according to the Globally Harmonized System (GHS).*
· ***Hazard pictograms***

GHS07

· ***Signal word*** *Warning*

· ***Hazard-determining components of labeling:***
Proclin-300
· ***Hazard statements***
May cause an allergic skin reaction.
· ***Precautionary statements***
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves.
If skin irritation or rash occurs: Get medical advice/attention.
Specific treatment (see on this label).
Wash contaminated clothing before reuse.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· ***Classification system:***
· ***NFPA ratings (scale 0 - 4)***

Health = 0
Fire = 0
Reactivity = 0

US

(Contd. on page 2)

(Contd. of page 1)

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride	1-2.5%
55965-84-9	Proclin-300	<0.1%

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride	12 mg/m³

· **PAC-2:**		
1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride	130 mg/m³

(Contd. on page 3)

(Contd. of page 2)

· **PAC-3:**		
1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride	790 mg/m³

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and containers:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
· **Respiratory protection:**
In case of brief or low exposure use an approved cartridge filter. In case of intensive or longer exposure use SCBA.
Suitable respiratory protective device recommended.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 4)

(Contd. of page 3)

· **Eye protection:** Goggles recommended during refilling.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Fluid
Color:	According to product specification
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	N/A
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Water:	97.8 %
VOC content:	0.00 %
Solids content:	1.7 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.

(Contd. on page 5)

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· ***Chemical stability***
· ***Thermal decomposition / conditions to be avoided:*** *No decomposition if used according to specifications.*
· ***Possibility of hazardous reactions*** *No dangerous reactions known.*
· ***Conditions to avoid*** *No further relevant information available.*
· ***Incompatible materials:*** *No further relevant information available.*
· ***Hazardous decomposition products:*** *No dangerous decomposition products known.*

11 Toxicological information

· ***Information on toxicological effects***
· ***Acute toxicity:***
· ***Primary irritant effect:***
· ***on the skin:*** *No irritant effect.*
· ***on the eye:*** *No irritating effect.*
· ***Sensitization:*** *Sensitization possible through skin contact.*
· ***Additional toxicological information:***
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· ***Carcinogenic categories***

· ***IARC (International Agency for Research on Cancer)***
None of the ingredients is listed.

· ***NTP (National Toxicology Program)***
None of the ingredients is listed.

· ***OSHA-Ca (Occupational Safety & Health Administration)***
None of the ingredients is listed.

12 Ecological information

· ***Toxicity***
· ***Aquatic toxicity:*** *No further relevant information available.*
· ***Persistence and degradability*** *No further relevant information available.*
· ***Behavior in environmental systems:***
· ***Bioaccumulative potential*** *No further relevant information available.*
· ***Mobility in soil*** *No further relevant information available.*
· ***Ecotoxical effects:*** *N/A*
· ***Other information:*** *N/A*
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*
· ***vPvB:*** *Not applicable.*
· ***Other adverse effects*** *No further relevant information available.*

13 Disposal considerations

· ***Waste treatment methods***
· ***Recommendation:*** *Must be specially treated adhering to official regulations.*

(Contd. on page 6)

(Contd. of page 5)

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **ADR, ADN, IMDG, IATA**	not regulated
· **UN proper shipping name**	
· **ADR, ADN, IMDG, IATA**	not regulated
· **Transport hazard class(es)**	
· **ADR, ADN, IMDG, IATA**	
· **Class**	not regulated
· **Packing group**	
· **ADR, IMDG, IATA**	not regulated
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	not regulated

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**
None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride
7647-14-5	sodium chloride
9000-71-9	casein
7732-18-5	Water

· **TSCA new (21st Century Act): (Substances not listed)**

55965-84-9	Proclin-300

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

(Contd. on page 7)

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· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information provided in this Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. Akoya Biosciences, Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

· **Date of preparation / last revision** 03/13/2019 / -

· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Skin Sens. 1: Skin sensitisation – Category 1

1 Identification

Product identifier

· ***Trade name: PolyHRP Broad Spectrum***

· ***Product number: ARH1001EA, ARH1A01EA***

· ***Application of the substance / the mixture Laboratory chemicals***

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Akoya Biosciences, Inc.
100 Campus Drive, 6th Floor
Marlborough. MA 01752 USA

· ***Information department:***
US Technical Support
855.896.8401

· ***Emergency telephone number:***
If inside USA, call CHEMTREC at 1-800-424-9300
If outside USA, call CHEMTREC at 1-703-527-3887

2 Hazard(s) identification

· ***Classification of the substance or mixture***
Skin Sens. 1 H317 May cause an allergic skin reaction.
· ***Additional information:*** *For the wording of the listed H phrases refer to section 16.*

· ***Label elements***
· ***GHS label elements*** *The product is classified and labeled according to the Globally Harmonized System (GHS).*
· ***Hazard pictograms***

GHS07

· ***Signal word*** *Warning*

· ***Hazard-determining components of labeling:***
Proclin-300
· ***Hazard statements***
May cause an allergic skin reaction.
· ***Precautionary statements***
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves.
If skin irritation or rash occurs: Get medical advice/attention.
Specific treatment (see on this label).
Wash contaminated clothing before reuse.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· ***Classification system:***
· ***NFPA ratings (scale 0 - 4)***

Health = 0
Fire = 0
Reactivity = 0

US

(Contd. on page 2)

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3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
55965-84-9	Proclin-300	<0.1%

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride	12 mg/m³

· **PAC-2:**		
1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride	130 mg/m³

(Contd. on page 3)

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· **PAC-3:**		
1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride	790 mg/m³

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and containers:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
· **Respiratory protection:**
In case of brief or low exposure use an approved cartridge filter. In case of intensive or longer exposure use SCBA.
Suitable respiratory protective device recommended.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 4)

(Contd. of page 3)

· **Eye protection:** Goggles recommended during refilling.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Fluid
Color:	According to product specification
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	N/A
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Water:	78.2 %
VOC content:	0.00 %
Solids content:	1.7 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.

(Contd. on page 5)

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· ***Chemical stability***
· ***Thermal decomposition / conditions to be avoided:*** *No decomposition if used according to specifications.*
· ***Possibility of hazardous reactions*** *No dangerous reactions known.*
· ***Conditions to avoid*** *No further relevant information available.*
· ***Incompatible materials:*** *No further relevant information available.*
· ***Hazardous decomposition products:*** *No dangerous decomposition products known.*

11 Toxicological information

· ***Information on toxicological effects***
· ***Acute toxicity:***
· ***Primary irritant effect:***
· ***on the skin:*** *No irritant effect.*
· ***on the eye:*** *No irritating effect.*
· ***Sensitization:*** *Sensitization possible through skin contact.*
· ***Additional toxicological information:***
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· ***Carcinogenic categories***

· ***IARC (International Agency for Research on Cancer)***
None of the ingredients is listed.

· ***NTP (National Toxicology Program)***
None of the ingredients is listed.

· ***OSHA-Ca (Occupational Safety & Health Administration)***
None of the ingredients is listed.

12 Ecological information

· ***Toxicity***
· ***Aquatic toxicity:*** *No further relevant information available.*
· ***Persistence and degradability*** *No further relevant information available.*
· ***Behavior in environmental systems:***
· ***Bioaccumulative potential*** *No further relevant information available.*
· ***Mobility in soil*** *No further relevant information available.*
· ***Ecotoxical effects:*** *N/A*
· ***Other information:*** *N/A*
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*
· ***vPvB:*** *Not applicable.*
· ***Other adverse effects*** *No further relevant information available.*

13 Disposal considerations

· ***Waste treatment methods***
· ***Recommendation:*** *Must be specially treated adhering to official regulations.*

(Contd. on page 6)

(Contd. of page 5)

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number**	
· **ADR, ADN, IMDG, IATA**	not regulated
· **UN proper shipping name**	
· **ADR, ADN, IMDG, IATA**	not regulated
· **Transport hazard class(es)**	
· **ADR, ADN, IMDG, IATA**	
· **Class**	not regulated
· **Packing group**	
· **ADR, IMDG, IATA**	not regulated
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	not regulated

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**
None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride
7647-14-5	sodium chloride
9000-71-9	casein
7732-18-5	Water

· **TSCA new (21st Century Act): (Substances not listed)**

55965-84-9	Proclin-300

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

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(Contd. of page 6)

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information provided in this Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. Akoya Biosciences, Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

· **Date of preparation / last revision** 03/13/2019 / -

· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Skin Sens. 1: Skin sensitisation – Category 1

1 Identification

Product identifier

· ***Trade name: DMSO***

· ***Product number: DMSO0100UL, DMSO0500UL***

· ***CAS Number: 67-68-5***

· ***EC number: 200-664-3***

· ***Application of the substance / the mixture Laboratory chemicals***

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Akoya Biosciences, Inc.
100 Campus Drive, 6th Floor
Marlborough. MA 01752 USA

· ***Information department:***
US Technical Support
855.896.8401

· ***Emergency telephone number:***
If inside USA, call CHEMTREC at 1-800-424-9300
If outside USA, call CHEMTREC at 1-703-527-3887

2 Hazard(s) identification

· ***Classification of the substance or mixture***

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

· ***Additional information:*** *For the wording of the listed H phrases refer to section 16.*

· ***Label elements***

· ***GHS label elements***

The substance is classified and labeled according to the Globally Harmonized System (GHS).

· ***Hazard pictograms***

GHS07

· ***Signal word*** *Warning*

· ***Hazard statements***

Causes skin irritation.
Causes serious eye irritation.

· ***Precautionary statements***

Wash thoroughly after handling.
Wear protective gloves / eye protection / face protection.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
If eye irritation persists: Get medical advice/attention.

(Contd. on page 2)

(Contd. of page 1)

· ***Classification system:***
· ***NFPA ratings (scale 0 - 4)***

Health = 2
Fire = 1
Reactivity = 0

3 Composition/information on ingredients

· ***Chemical characterization: Substances***
· ***CAS No. Description***
67-68-5 dimethyl sulfoxide
· ***Identification number(s)***
· ***EC number:*** *200-664-3*

4 First-aid measures

· ***Description of first aid measures***
· ***General information:*** *Immediately remove any clothing soiled by the product.*
· ***After inhalation:*** *In case of unconsciousness place patient stably in side position for transportation.*
· ***After eye contact:***
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· ***After swallowing:*** *If symptoms persist consult doctor.*
· ***Information for doctor:***
· ***Most important symptoms and effects, both acute and delayed*** *No further relevant information available.*
· ***Indication of any immediate medical attention and special treatment needed***
No further relevant information available.

5 Fire-fighting measures

· ***Extinguishing media***
· ***Suitable extinguishing agents:***
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· ***Special hazards arising from the substance or mixture*** *No further relevant information available.*
· ***Advice for firefighters***
· ***Protective equipment:*** *Wear self-contained respiratory protective device.*

6 Accidental release measures

· ***Personal precautions, protective equipment and emergency procedures*** *Not required.*
· ***Environmental precautions:***
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· ***Methods and material for containment and cleaning up:***
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
· ***Reference to other sections***
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Contd. on page 3)

(Contd. of page 2)

· **Protective Action Criteria for Chemicals**

· PAC-1:
150 ppm
· PAC-2:
290 ppm
· PAC-3:
1,800 ppm

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Store in cool, dry place in tightly closed receptacles.
No special precautions are necessary if used correctly.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and containers:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· Components with limit values that require monitoring at the workplace:	
67-68-5 dimethyl sulfoxide (75-100%)	
WEEL	Long-term value: 250 ppm

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from food and beverages.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· **Respiratory protection:** Suitable respiratory protective device recommended.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

(Contd. on page 4)

(Contd. of page 3)

· ***Penetration time of glove material***
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· ***Eye protection:***

Tightly sealed goggles

9 Physical and chemical properties

· ***Information on basic physical and chemical properties***	
· ***General Information***	
· ***Appearance:***	
Form:	*Fluid*
Color:	*Colorless*
· ***Odor:***	*Odorless*
· ***Odor threshold:***	*Not determined.*
· ***pH-value:***	*N/A*
· ***Change in condition***	
Melting point/Melting range:	*18.45 °C (65.2 °F)*
Boiling point/Boiling range:	*189 °C (372.2 °F)*
· ***Flash point:***	*95 °C (203 °F)*
· ***Flammability (solid, gaseous):***	*Not applicable.*
· ***Ignition temperature:***	*270 °C (518 °F)*
· ***Decomposition temperature:***	*Not determined.*
· ***Auto igniting:***	*Not determined.*
· ***Danger of explosion:***	*Product does not present an explosion hazard.*
· ***Explosion limits:***	
Lower:	*1.8 Vol %*
Upper:	*63 Vol %*
· ***Vapor pressure at 20 °C (68 °F):***	*2.5 hPa (1.9 mm Hg)*
· ***Density at 20 °C (68 °F):***	*1.1 g/cm³ (9.1795 lbs/gal)*
· ***Relative density***	*Not determined.*
· ***Vapor density***	*Not determined.*
· ***Evaporation rate***	*Not determined.*
· ***Solubility in / Miscibility with***	
Water:	*Fully miscible.*
· ***Partition coefficient (n-octanol/water):***	*Not determined.*
· ***Viscosity:***	
Dynamic at 20 °C (68 °F):	*198 mPas*
Kinematic:	*Not determined.*
Organic solvents:	*100.0 %*
VOC content:	*100.00 %*

(Contd. on page 5)

(Contd. of page 4)

· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
67-68-5 dimethyl sulfoxide		
Oral	LD50	14,500 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
Substance is not listed.

· **NTP (National Toxicology Program)**
Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
Substance is not listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:** N/A
· **Other information:** N/A
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

(Contd. on page 6)

(Contd. of page 5)

· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Must be specially treated adhering to official regulations.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· **UN-Number** · **ADR, ADN, IMDG, IATA**	not regulated
· **UN proper shipping name** · **ADR, ADN, IMDG, IATA**	not regulated
· **Transport hazard class(es)** · **ADR, ADN, IMDG, IATA** · **Class**	not regulated
· **Packing group** · **ADR, IMDG, IATA**	not regulated
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	not regulated

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**
Substance is not listed.

· **TSCA (Toxic Substances Control Act):**
Substance is listed.

· **Hazardous Air Pollutants**
Substance is not listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
Substance is not listed.

(Contd. on page 7)

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· **Chemicals known to cause reproductive toxicity for females:**
Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:**
Substance is not listed.

· **Chemicals known to cause developmental toxicity:**
Substance is not listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**
Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
Substance is not listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information provided in this Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. Akoya Biosciences, Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

· **Date of preparation / last revision** 03/13/2019 / -

· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

1 Identification

Product identifier

· ***Trade name: Opal Polaris 780***

· ***Product number: OP-001008***

· ***Application of the substance / the mixture Laboratory chemicals***

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Akoya Biosciences, Inc.
100 Campus Drive, 6th Floor
Marlborough. MA 01752 USA

· ***Information department:***
US Technical Support
855.896.8401

· ***Emergency telephone number:***
If inside USA, call CHEMTREC at 1-800-424-9300
If outside USA, call CHEMTREC at 1-703-527-3887

2 Hazard(s) identification

· ***Classification of the substance or mixture***
The product has been classified and is not hazadous according to the Globally Harmonized System (GHS).

· ***Label elements***
· ***GHS label elements*** *Void*
· ***Hazard pictograms*** *Void*
· ***Signal word*** *Void*
· ***Hazard statements*** *Void*
· ***Classification system:***
· ***NFPA ratings (scale 0 - 4)***

Health = 0
Fire = 0
Reactivity = 0

3 Composition/information on ingredients

· ***Chemical characterization: Mixtures***
· ***Description:*** *Mixture of the substances listed below with nonhazardous additions.*

· ***Dangerous components:*** *Void*

4 First-aid measures

· ***Description of first aid measures***
· ***General information:*** *No special measures required.*
· ***After inhalation:*** *Supply fresh air; consult doctor in case of complaints.*
· ***After skin contact:*** *If skin irritation continues, consult a doctor.*
· ***After eye contact:*** *Rinse opened eye for several minutes under running water.*
· ***After swallowing:*** *If symptoms persist consult doctor.*
· ***Information for doctor:***
· ***Most important symptoms and effects, both acute and delayed*** *No further relevant information available.*

(Contd. on page 2)

(Contd. of page 1)

· ***Indication of any immediate medical attention and special treatment needed***
No further relevant information available.

5 Fire-fighting measures

· ***Extinguishing media***
· ***Suitable extinguishing agents:*** *Use fire fighting measures that suit the environment.*
· ***Special hazards arising from the substance or mixture*** *No further relevant information available.*
· ***Advice for firefighters***
· ***Protective equipment:*** *Wear self-contained respiratory protective device.*

6 Accidental release measures

· ***Personal precautions, protective equipment and emergency procedures*** *Not required.*
· ***Environmental precautions:*** *Do not allow to enter sewers/ surface or ground water.*
· ***Methods and material for containment and cleaning up:*** *Pick up mechanically.*
· ***Reference to other sections***
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· ***Protective Action Criteria for Chemicals***

· ***PAC-1:***		
26628-22-8	*sodium azide*	*0.026 mg/m³*

· ***PAC-2:***		
26628-22-8	*sodium azide*	*0.29 mg/m³*

· ***PAC-3:***		
26628-22-8	*sodium azide*	*5.3 mg/m³*

7 Handling and storage

· ***Handling:***
· ***Precautions for safe handling*** *No special measures required.*
· ***Information about protection against explosions and fires:*** *No special measures required.*

· ***Conditions for safe storage, including any incompatibilities***
· ***Storage:***
· ***Requirements to be met by storerooms and containers:*** *No special requirements.*
· ***Information about storage in one common storage facility:*** *Not required.*
· ***Further information about storage conditions:*** *None.*
· ***Specific end use(s)*** *No further relevant information available.*

8 Exposure controls/personal protection

· ***Additional information about design of technical systems:*** *No further data; see item 7.*

· ***Control parameters***
· ***Components with limit values that require monitoring at the workplace:***
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

(Contd. on page 3)

(Contd. of page 2)

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
· **Respiratory protection:** Not required.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:** Not required.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Solid
Color:	According to product specification
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	N/A
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water:	Insoluble.

(Contd. on page 4)

(Contd. of page 3)

· ***Partition coefficient (n-octanol/water):*** *Not determined.*

· ***Viscosity:***
Dynamic: *Not applicable.*
Kinematic: *Not applicable.*

· ***Solvent content:***
VOC content: *0.00 %*

Solids content: *100.0 %*
· ***Other information*** *No further relevant information available.*

10 Stability and reactivity

· ***Reactivity*** *No further relevant information available.*
· ***Chemical stability***
· ***Thermal decomposition / conditions to be avoided:*** *No decomposition if used according to specifications.*
· ***Possibility of hazardous reactions*** *No dangerous reactions known.*
· ***Conditions to avoid*** *No further relevant information available.*
· ***Incompatible materials:*** *No further relevant information available.*
· ***Hazardous decomposition products:*** *No dangerous decomposition products known.*

11 Toxicological information

· ***Information on toxicological effects***
· ***Acute toxicity:***

· ***LD/LC50 values that are relevant for classification:***

26628-22-8 sodium azide

Oral	LD50	27 mg/kg (rat)
Dermal	LD50	20 mg/kg (rabbit)

· ***Primary irritant effect:***
· ***on the skin:*** *No irritant effect.*
· ***on the eye:*** *No irritating effect.*
· ***Sensitization:*** *No sensitizing effects known.*
· ***Additional toxicological information:***
The product is not subject to classification according to internally approved calculation methods for preparations:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· ***Carcinogenic categories***

· ***IARC (International Agency for Research on Cancer)***
None of the ingredients is listed.

· ***NTP (National Toxicology Program)***
None of the ingredients is listed.

· ***OSHA-Ca (Occupational Safety & Health Administration)***
None of the ingredients is listed.

US

(Contd. on page 5)

(Contd. of page 4)

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:** N/A
· **Other information:** N/A
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Must be specially treated adhering to official regulations.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number** · **ADR, ADN, IMDG, IATA**	not regulated
· **UN proper shipping name** · **ADR, ADN, IMDG, IATA**	not regulated
· **Transport hazard class(es)** · **ADR, ADN, IMDG, IATA** · **Class**	not regulated
· **Packing group** · **ADR, IMDG, IATA**	not regulated
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	not regulated

US

(Contd. on page 6)

(Contd. of page 5)

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**

26628-22-8	sodium azide

· **Section 313 (Specific toxic chemical listings):**

26628-22-8	sodium azide

· **TSCA (Toxic Substances Control Act):**

9048-46-8	Bovine Serum Albumin
26628-22-8	sodium azide

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

26628-22-8	sodium azide	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information provided in this Safety Data Sheet is based on our present knowledge, and believed to be correct at the date of publication. However, no representation is made concerning its accuracy and completeness. It is intended as guidance only, and is not to be considered a warranty or quality specification. All materials may present unknown hazards, and should be used with caution. Although certain hazards are described, we cannot guarantee that these are the only hazards which exist. Akoya Biosciences, Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

· **Date of preparation / last revision** 03/13/2019 / -
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association

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ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit

US

SAFETY DATA SHEET

Antibody Preparations - CD8

Section 1. Identification

GHS product identifier : Antibody Preparations

Other means of identification : Not available.

Product type : Liquid.

Product code : OP-000510 OP-000511

Section 1. Identification

SDS #	:	2805
Chemical formula	:	Not applicable.
CAS #	:	Not applicable.

Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

Section 1. Identification

Supplier's details : **Akoya Biosciences**
100 Campus Drive, 6th Floor
Marlborough, MA 01752
United States
855-896-8401

Emergency telephone number (with hours of operation) : CHEMTREC: 800.424.9300
Outside US: 703.527.3887

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

CAS number/other identifiers

CAS number : Not applicable.

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Section 4. First aid measures

Ingestion : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Section 6. Accidental release measures

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Section 8. Exposure controls/personal protection

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Not available.

Odor : Not available.

Odor threshold : Not available.

pH : Not available.

Melting point : Not available.

Boiling point : Not available.

Flash point : Not available.

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Relative density : Not available.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Conclusion/Summary : To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Section 11. Toxicological information

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IATA
UN number	Not regulated.	Not regulated.
UN proper shipping name	-	-

Section 14. Transport information

Transport hazard class(es)	-	-
Packing group	-	-
Environmental hazards	No.	No.
Additional information	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ (lbs)	SARA 302 TPQ (gallons)	SARA 304 RQ (lbs)	SARA 304 RQ (gallons)
sodium azide	0 - 0.1	Yes.	500	-	1000	-

SARA 304 RQ : 1111111.1 lbs / 504444.4 kg

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No products were found.

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

Canada inventory : All components are listed or exempted.

International regulations

Section 15. Regulatory information

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	0
Chronic Health Hazard	
Flammability	0
Physical hazards	0

National Fire Protection Association (U.S.A.)

Health	0
Flammability	0
Instability/Reactivity	0
Special	

The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

History

Date of printing : 11/6/2015.

Date of issue/Date of revision : 11/6/2015.

Date of previous issue : 11/4/2015.

Version : 1.09

Prepared by : SDS Specialist

Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Safety Data Sheet

Issuing date No data available **Revision Date** 31-Oct-2019 **Version** 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product name **Mouse monoclonal [PG-M1] to CD68**

Recommended use For research use only

Supplier Address

Akoya Biosciences
100 Campus Drive, 6th Floor
Marlborough, MA 01752 United States
855-896-8401

E-mail address support@akoyabio.com

Emergency telephone +1 866 928 0789 (Toll free) /+1 202 464 2554

2. HAZARDS IDENTIFICATION

GHS - Classification

Ozone	Not applicable

GHS Label elements, including precautionary statements

Not dangerous

Precautionary Statements - EU (§28, 1272/2008)

P280 - Wear protective gloves/ protective clothing

Other information

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	CAS-No	Weight %	Classification (Reg. 1272/2008)
Sodium azide	26628-22-8	<0.1	Acute Tox. 2 (H300) Acute Tox. 1 (H310) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) (EUH032)

For the full text of the H-Statements mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Eye contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Inhalation Move to fresh air.

Ingestion Clean mouth with water. Drink plenty of water.

Notes to physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flammable properties Not flammable.

Flash point not determined

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Explosion Data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear to prevent contact with skin and eyes.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions Ensure adequate ventilation.

Environmental precautions Try to prevent the material from entering drains or water courses.

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Technical measures/Storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sodium azide 26628-22-8	Ceiling: 0.29 mg/m³ NaN3 Ceiling: 0.11 ppm Hydrazoic acid vapor	(vacated) S* (vacated) Ceiling: 0.1 ppm HN3 (vacated) Ceiling: 0.3 mg/m³ NaN3	Ceiling: 0.1 ppm HN3 Ceiling: 0.3 mg/m³ NaN3

Engineering measures
Showers
Eyewash stations
Ventilation systems

Personal protective equipment

Eye/face protection Tightly fitting safety goggles. Use equipment for eye protection tested and approved under appropriategovernment standards such as NIOSH (US) or EN 166(EU).

Skin and body protection Long sleeved clothing. Protective gloves.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	No information available.	**Odor**	No information available.
Odor Threshold	No information available	**Physical State @20°C**	Liquid
pH	No information available		
Flash point	No information available	**Autoignition temperature**	No information available
Decomposition temperature	No information available	**Boiling point/boiling range**	No information available
Melting point/range	No information available		
		Flammability Limits in Air	No information available
Explosion limits	No information available		
Specific Gravity	No data available	**solubility**	No information available.
Evaporation rate	No information available	**Vapor Pressure @20°C (kPa)**	No information available
Vapor density	No data available	**VOC Content(%)**	Not applicable

10. STABILITY AND REACTIVITY

Stability Stable under recommended storage conditions.

Incompatible products None known based on information supplied.

Conditions to avoid None known based on information supplied.

Hazardous decomposition products None known based on information supplied.

Hazardous polymerization Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product Information Product does not present an acute toxicity hazard based on known or supplied information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium azide	27 mg/kg (Rat)	50 mg/kg (Rat) 20 mg/kg (Rabbit)	

Chronic toxicity

Target Organ Effects None known.

12. ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Sodium azide		0.8: 96 h Oncorhynchus mykiss mg/L LC50 0.7: 96 h Lepomis macrochirus mg/L LC50 5.46: 96 h Pimephales promelas mg/L LC50 flow-through		

13. DISPOSAL CONSIDERATIONS

Waste disposal methods This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated packaging Do not re-use empty containers.

Chemical Name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Sodium azide - 26628-22-8		P105		

Chemical Name	California Hazardous Waste Status
Sodium azide	Ignitable Reactive

14. TRANSPORT INFORMATION

DOT Not dangerous goods

IATA Not dangerous goods

ADR Not dangerous goods

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	no
Chronic Health Hazard	no
Fire Hazard	no
Sudden Release of Pressure Hazard	no
Reactive Hazard	no

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Sodium azide	1000 lb	1000 lb	RQ 1000 lb final RQ RQ 454 kg final RQ

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

International Regulations

WHMIS Note: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H300 + H310 - Fatal if swallowed or in contact with skin H400 - Very toxic to aquatic life H410 - Very toxic to aquatic life with long lasting effects

Revision Date 31-Oct-2019
Revision Note No information available.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of MSDS

Safety Data Sheet (SDS) According to the REACH Regulation (EC) No. 1907/2006

Issuing Date: 2017-07-10 **Version:** 1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product No OP-000512 OP-000513 OP-000514
Product name FoxP3 (D6O8R) Rabbit mAb
Reach registration number This substance/mixture contains only ingredients which have been registered, or are exempt from registration, according to Regulation (EC) No. 1907/2006.

Contains

Chemical Name	Index No.	CAS No
glycerol (30-60)	Not Listed	56-81-5
sodium azide (0 - 10%)	011-004-00-7	26628-22-8

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses For research use only

1.3. Details of the supplier of the safety data sheet

Manufacturer
Akoya Biosciences
100 Campus Drive, 6th Floor
Marlborough, MA 01752
United States
855-896-8401

Website www.akoyabio.com
E-mail Address support@akoyabio.com

1.4. Emergency telephone number

CHEMTREC 24 hours a day, 7 days a week, 365 days a year
+1 703 527 3887 (INTERNATIONAL) +1 800 424 9300 (NORTH AMERICA)

Europe 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

This substance is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

2.2. Label elements

Supplemental hazard statement(s)
EUH210 - Safety data sheet available on request

2.3. Other hazards

May produce an allergic reaction.
For the full text of the H-phrases & EUH-phrases mentioned in this Section, see Section 16

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical Name	CAS No	Weight %	EC No	Classification (1272/2008)	REACH Registration Number
glycerol	56-81-5	30-60	200-289-5	-	no data available
sodium azide	26628-22-8	0.02	247-852-1	Acute Tox. 2 (H300) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) (EUH032)	no data available

For the full text of the H-phrases & EUH-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice Use first aid treatment according to the nature of the injury. When symptoms persist or in all cases of doubt seek medical advice.

Inhalation IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention immediately if symptoms occur.

Skin contact Wash skin with soap and water.

Eye contact Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing. Get medical attention immediately if irritation persists.

Ingestion Clean mouth with water and afterwards drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit. Use personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Avoid contact with skin, eyes and clothing. Use personal protective equipment. For personal protection see section 8.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

6.4. Reference to other sections

See Sections 8 & 13 for additional information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Wear personal protective equipment. See section 8. Avoid contact with skin, eyes and clothing. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

7.3. Specific end use(s)

Use as a laboratory reagent.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Chemical Name	European Union	United Kingdom	France	Spain	Germany
glycerol		STEL 30 mg/m³ TWA 10 mg/m³	TWA 10 mg/m³	TWA 10 mg/m³	Ceiling / Peak: 400 mg/m³ TWA: 200 mg/m³
sodium azide	TWA 0.1 mg/m³ STEL 0.3 mg/m³ S*	STEL 0.3 mg/m³ TWA 0.1 mg/m³ Skin	TWA 0.1 mg/m³ STEL 0.3 mg/m³ P*	TWA 0.1 mg/m³ STEL 0.3 mg/m³ S*	TWA: 0.2 mg/m³ Ceiling / Peak: 0.4 mg/m³
Chemical Name	**Italy**	**Portugal**	**Netherlands**	**Finland**	**Denmark**
glycerol		TWA 10 mg/m³		TWA 20 mg/m³	
sodium azide	TWA 0.1 mg/m³ STEL 0.3 mg/m³ Pelle*	TWA 0.1 mg/m³ STEL 0.3 mg/m³ Ceiling 0.29 mg/m³ Ceiling 0.11 ppm C(A4) P*	Huid* STEL 0.3 mg/m³ TWA 0.1 mg/m³	TWA 0.1 mg/m³ STEL 0.3 mg/m³ iho*	TWA 0.1 mg/m³ H*
Chemical Name	**Austria**	**Switzerland**	**Poland**	**Norway**	**Ireland**
glycerol		SS-C**	TWA 10 mg/m³		TWA 10 mg/m³

		TWA 50 mg/m³ STEL 100 mg/m³			STEL 30 mg/m³
sodium azide	H* STEL 0.3 mg/m³ TWA 0.1 mg/m³	TWA 0.2 mg/m³ STEL 0.4 mg/m³	TWA 0.1 mg/m³ STEL 0.3 mg/m³	TWA 0.1 mg/m³ STEL 0.1 mg/m³	TWA 0.1 mg/m³ STEL 0.3 mg/m³ Skin

8.2. Exposure controls

Appropriate engineering controls
Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection	If splashes are likely to occur, wear: Tightly fitting safety goggles
Skin protection	
Hand protection	Impervious gloves.
Other	Wear suitable protective clothing.
Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Environmental Exposure Controls
No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Color	Colorless
Odor	No information available
Odor Threshold	No information available

Property	**Values**	**Remarks • Method**
pH	7.5	@ 20 °C
Melting point/freezing point		No information available
Initial boiling point and boiling range		No information available
Flash point		No information available.
Evaporation rate		No information available
Flammability (solid, gas)		No information available
Upper flammability limit		No information available
Lower flammability limit		No information available
Vapor pressure		No information available
Vapor density		No information available
Relative density		No information available
Solubility		No information available
Partition coefficient: n-octanol/water		No information available
Autoignition temperature		No information available
Decomposition temperature		No information available.
Viscosity		No information available
Explosive properties		No information available
Oxidizing properties		No information available

9.2. Other information

Softening point	No information available
Molecular Weight	No information available
Solubility in other solvents	No information available
VOC content	No information available
Density	No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerization Hazardous polymerization does not occur.
Hazardous reactions None under normal processing.

10.4. Conditions to avoid

Extremes of temperature and direct sunlight. Over a period of time, sodium azide may react with copper, lead, brass, or solder in plumbing systems to form an accumulation of the HIGHLY EXPLOSIVE compounds of lead azide & copper azide.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids.

10.6. Hazardous decomposition products

Nitrogen oxides (NOx).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

This product is for experimental uses only. The product has not been completely analyzed and all of the hazards may not be known. Please use caution while handling this product.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
glycerol	= 12600 mg/kg (Rat)	> 10 g/kg (Rabbit)	> 570 mg/m³ (Rat) 1 h
sodium azide	= 27 mg/kg (Rat)	= 20 mg/kg (Rabbit) = 50 mg/kg (Rat)	-

Information on likely routes of exposure

Inhalation Avoid breathing vapors or mists. May cause irritation of respiratory tract.
Eye contact Avoid contact with eyes. May cause slight irritation.
Skin contact Avoid contact with skin.
Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing.
Skin corrosion/irritation No information available.
Serious eye damage/eye irritation No information available.
Sensitization No information available.
Mutagenic effects No information available.
Carcinogenic effects No information available.
Reproductive toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Aspiration Hazard No information available.
Other information No information available.

SECTION 12: Ecological information

12.1. Toxicity

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
glycerol	-	LC50 51 - 57 mL/L (Oncorhynchus mykiss) 96 h	EC50 500 mg/L (Daphnia magna) 24 h
sodium azide	EC50 0.35 mg/L (Pseudokirchneriella subcapitata) 96 h	LC50 0.8 mg/L (Oncorhynchus mykiss) 96 h LC50 5.46 mg/L (Pimephales promelas) 96 h LC50 0.7 mg/L (Lepomis macrochirus) 96 h	LC100 1 mg/L (Orconectes rusticus) 96 h

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

Bioaccumulation No information available.
Bioconcentration factor (BCF) No information available.

Chemical Name	Octanol-Water Partition Coefficient
glycerol	-1.76

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects

No information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues / unused products Dispose of in accordance with local regulations.
Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.
Other information Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

IMDG/IMO

14.1 UN number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards None
14.6 Special precautions for user None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not regulated

ADR/RID

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	None
14.6 Special precautions for user	None

IATA

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	None
14.6 Special precautions for user	None

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Candidate List of Substances of Very High Concern for Authorization Information

This product does not contain Substances of Very High Concern (SVHC).

SEVESO Directive Information

This product does not contain substances identified in the SEVESO Directive.

International inventories

TSCA 8(b)	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	-
IECSC	Complies
KECL	-
PICCS	-
AICS	Complies

International inventories legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out

SECTION 16: Other information

Full text of H-Statements referred to under Sections 2 and 3

This substance/mixture does not meet the criteria for classification in accordance with Regulation (EC) No. 1272/2008

Classification procedure: Expert judgment and weight of evidence determination.
Issuing Date: 2017-07-10

Disclaimer

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transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SAFETY DATA SHEET

Version 6.4
Revision Date 06/16/2019
Print Date 12/06/2019

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Cytokeratin Cocktail (AE1 & AE3)

Product Number : OP-000515
Brand : Opal

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Akoya Biosciences
100 Campus Drive, 6th Floor
Marlborough, MA 01752
United States 855-896-8401

Telephone

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.2 Mixtures

No components need to be disclosed according to the applicable regulations.

SECTION 4: First aid measures

4.1 Description of first aid measures

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact
Wash off with soap and plenty of water.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid breathing vapours, mist or gas.
For personal protection see section 8.

6.2 Environmental precautions
No special environmental precautions required.

6.3 Methods and materials for containment and cleaning up
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature 2 - 8 °C
Storage class (TRGS 510): 12: Non Combustible Liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
General industrial hygiene practice.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
No special environmental precautions required.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available

c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products

Other decomposition products - No data available
Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Sodium azide	26628-22-8	2007-07-01

Pennsylvania Right To Know Components

Water	CAS-No.	Revision Date
	7732-18-5	
Sodium azide	26628-22-8	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.4 Revision Date: 06/16/2019 Print Date: 12/06/2019

Safety Data Sheet (SDS) According to the REACH Regulation (EC) No. 1907/2006

Issuing Date: 2017-07-10 **Version:** 1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product No OP-000501 OP-000502 OP-000503
Product name PD-L1 (E1L3N®) XP® Rabbit mAb
Reach registration number This substance/mixture contains only ingredients which have been registered, or are exempt from registration, according to Regulation (EC) No. 1907/2006.

Contains

Chemical Name	Index No.	CAS No
glycerol (30-60)	Not Listed	56-81-5
sodium azide (0 - 10%)	011-004-00-7	26628-22-8

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses For research use only

1.3. Details of the supplier of the safety data sheet

Manufacturer
Akoya Biosciences
100 Campus Drive, 6th Floor
Marlborough, MA 01752
United States
855-896-8401

Website www.akoyabio.com
E-mail Address support@akoyabio.com

1.4. Emergency telephone number

CHEMTREC 24 hours a day, 7 days a week, 365 days a year
+1 703 527 3887 (INTERNATIONAL) +1 800 424 9300 (NORTH AMERICA)

Europe 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

This substance is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]

2.2. Label elements

Supplemental hazard statement(s)
EUH210 - Safety data sheet available on request

2.3. Other hazards

May produce an allergic reaction.
For the full text of the H-phrases & EUH-phrases mentioned in this Section, see Section 16

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical Name	CAS No	Weight %	EC No	Classification (1272/2008)	REACH Registration Number
glycerol	56-81-5	30-60	200-289-5	-	no data available
sodium azide	26628-22-8	0.02	247-852-1	Acute Tox. 2 (H300) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) (EUH032)	no data available

For the full text of the H-phrases & EUH-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice Use first aid treatment according to the nature of the injury. When symptoms persist or in all cases of doubt seek medical advice.

Inhalation IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention immediately if symptoms occur.

Skin contact Wash skin with soap and water.

Eye contact Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing. Get medical attention immediately if irritation persists.

Ingestion Clean mouth with water and afterwards drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit. Use personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Avoid contact with skin, eyes and clothing. Use personal protective equipment. For personal protection see section 8.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

6.4. Reference to other sections

See Sections 8 & 13 for additional information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Wear personal protective equipment. See section 8. Avoid contact with skin, eyes and clothing. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

7.3. Specific end use(s)

Use as a laboratory reagent.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Chemical Name	European Union	United Kingdom	France	Spain	Germany
glycerol		STEL 30 mg/m³ TWA 10 mg/m³	TWA 10 mg/m³	TWA 10 mg/m³	Ceiling / Peak: 400 mg/m³ TWA: 200 mg/m³
sodium azide	TWA 0.1 mg/m³ STEL 0.3 mg/m³ S*	STEL 0.3 mg/m³ TWA 0.1 mg/m³ Skin	TWA 0.1 mg/m³ STEL 0.3 mg/m³ P*	TWA 0.1 mg/m³ STEL 0.3 mg/m³ S*	TWA: 0.2 mg/m³ Ceiling / Peak: 0.4 mg/m³
Chemical Name	**Italy**	**Portugal**	**Netherlands**	**Finland**	**Denmark**
glycerol		TWA 10 mg/m³		TWA 20 mg/m³	
sodium azide	TWA 0.1 mg/m³ STEL 0.3 mg/m³ Pelle*	TWA 0.1 mg/m³ STEL 0.3 mg/m³ Ceiling 0.29 mg/m³ Ceiling 0.11 ppm C(A4) P*	Huid* STEL 0.3 mg/m³ TWA 0.1 mg/m³	TWA 0.1 mg/m³ STEL 0.3 mg/m³ iho*	TWA 0.1 mg/m³ H*
Chemical Name	**Austria**	**Switzerland**	**Poland**	**Norway**	**Ireland**
glycerol		SS-C**	TWA 10 mg/m³		TWA 10 mg/m³

		TWA 50 mg/m³ STEL 100 mg/m³			STEL 30 mg/m³
sodium azide	H* STEL 0.3 mg/m³ TWA 0.1 mg/m³	TWA 0.2 mg/m³ STEL 0.4 mg/m³	TWA 0.1 mg/m³ STEL 0.3 mg/m³	TWA 0.1 mg/m³ STEL 0.1 mg/m³	TWA 0.1 mg/m³ STEL 0.3 mg/m³ Skin

8.2. Exposure controls

Appropriate engineering controls
Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection	If splashes are likely to occur, wear: Tightly fitting safety goggles
Skin protection	
Hand protection	Impervious gloves.
Other	Wear suitable protective clothing.
Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Environmental Exposure Controls
No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Color	Colorless
Odor	No information available
Odor Threshold	No information available

Property	**Values**	**Remarks • Method**
pH	7.5	@ 20 °C
Melting point/freezing point		No information available
Initial boiling point and boiling range		No information available
Flash point		No information available.
Evaporation rate		No information available
Flammability (solid, gas)		No information available
Upper flammability limit		No information available
Lower flammability limit		No information available
Vapor pressure		No information available
Vapor density		No information available
Relative density		No information available
Solubility		No information available
Partition coefficient: n-octanol/water		No information available
Autoignition temperature		No information available
Decomposition temperature		No information available.
Viscosity		No information available
Explosive properties		No information available
Oxidizing properties		No information available

9.2. Other information

Softening point	No information available
Molecular Weight	No information available
Solubility in other solvents	No information available
VOC content	No information available
Density	No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerization Hazardous polymerization does not occur.
Hazardous reactions None under normal processing.

10.4. Conditions to avoid

Extremes of temperature and direct sunlight. Over a period of time, sodium azide may react with copper, lead, brass, or solder in plumbing systems to form an accumulation of the HIGHLY EXPLOSIVE compounds of lead azide & copper azide.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids.

10.6. Hazardous decomposition products

Nitrogen oxides (NOx).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

This product is for experimental uses only. The product has not been completely analyzed and all of the hazards may not be known. Please use caution while handling this product.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
glycerol	= 12600 mg/kg (Rat)	> 10 g/kg (Rabbit)	> 570 mg/m³ (Rat) 1 h
sodium azide	= 27 mg/kg (Rat)	= 20 mg/kg (Rabbit) = 50 mg/kg (Rat)	-

Information on likely routes of exposure

Inhalation Avoid breathing vapors or mists. May cause irritation of respiratory tract.
Eye contact Avoid contact with eyes. May cause slight irritation.
Skin contact Avoid contact with skin.
Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing.
Skin corrosion/irritation No information available.
Serious eye damage/eye irritation No information available.
Sensitization No information available.
Mutagenic effects No information available.
Carcinogenic effects No information available.
Reproductive toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Aspiration Hazard No information available.
Other information No information available.

SECTION 12: Ecological information

12.1. Toxicity

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
glycerol	-	LC50 51 - 57 mL/L (Oncorhynchus mykiss) 96 h	EC50 500 mg/L (Daphnia magna) 24 h
sodium azide	EC50 0.35 mg/L (Pseudokirchneriella subcapitata) 96 h	LC50 0.8 mg/L (Oncorhynchus mykiss) 96 h LC50 5.46 mg/L (Pimephales promelas) 96 h LC50 0.7 mg/L (Lepomis macrochirus) 96 h	LC100 1 mg/L (Orconectes rusticus) 96 h

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

Bioaccumulation No information available.
Bioconcentration factor (BCF) No information available.

Chemical Name	Octanol-Water Partition Coefficient
glycerol	-1.76

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects

No information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues / unused products Dispose of in accordance with local regulations.
Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.
Other information Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

IMDG/IMO
14.1 UN number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards None
14.6 Special precautions for user None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not regulated

ADR/RID

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	None
14.6 Special precautions for user	None

IATA

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	None
14.6 Special precautions for user	None

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Candidate List of Substances of Very High Concern for Authorization Information

This product does not contain Substances of Very High Concern (SVHC).

SEVESO Directive Information

This product does not contain substances identified in the SEVESO Directive.

International inventories

TSCA 8(b)	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	-
IECSC	Complies
KECL	-
PICCS	-
AICS	Complies

International inventories legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out

SECTION 16: Other information

Full text of H-Statements referred to under Sections 2 and 3

This substance/mixture does not meet the criteria for classification in accordance with Regulation (EC) No. 1272/2008

Classification procedure: Expert judgment and weight of evidence determination.
Issuing Date: 2017-07-10

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage,

transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Safety Data Sheet

Issuing date No data available **Revision Date** 28-Dec-2017 **Version** 2

1. PRODUCT AND COMPANY IDENTIFICATION

Product name **Rabbit monoclonal [EPR4877(2)] to PD1 OP-000504 OP-000505 OP-000506 OP-000507**

Recommended use For research use only

Supplier Address

Akoya Biosciences
100 Campus Drive, 6th Floor
Marlborough, MA 01752
United States
855-896-8401

E-mail address support@akoyabio.com

Emergency telephone Tel: (617)225-2272 or 888-77 (22226) (US toll free) - Monday-Friday 8am-9pm EST

2. HAZARDS IDENTIFICATION

GHS - Classification

Ozone	Not applicable

GHS Label elements, including precautionary statements

Not dangerous

Other information

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	CAS-No	Weight %	Classification (Reg. 1272/2008)
Sodium azide	26628-22-8	<0.1	Acute Tox. 2 (H300) Acute Tox. 1 (H310) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) (EUH032)

For the full text of the H-Statements mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Eye contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Inhalation Move to fresh air.

Ingestion Clean mouth with water. Drink plenty of water.

Notes to physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flammable properties Not flammable.

Flash point not determined

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Explosion Data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear to prevent contact with skin and eyes.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions Ensure adequate ventilation.

Environmental precautions Try to prevent the material from entering drains or water courses.

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Technical measures/Storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sodium azide 26628-22-8	Ceiling: 0.29 mg/m³ NaN3 Ceiling: 0.11 ppm Hydrazoic acid vapor	(vacated) S* (vacated) Ceiling: 0.1 ppm HN3 (vacated) Ceiling: 0.3 mg/m³ NaN3	Ceiling: 0.1 ppm HN3 Ceiling: 0.3 mg/m³ NaN3

NIOSH IDLH: Immediately Dangerous to Life or Health

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Engineering measures
Showers
Eyewash stations
Ventilation systems

Personal protective equipment

Eye/face protection No special protective equipment required.

Skin and body protection No special protective equipment required.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	No information available.	**Odor**	No information available.
Odor Threshold	No information available	**Physical State @20°C**	No information available
pH	7.20		
Flash point	No information available	**Autoignition temperature**	No information available
Decomposition temperature	No information available	**Boiling point/boiling range**	No information available
Melting point/range	No information available		
		Flammability Limits in Air	No information available
Explosion limits	No information available		
Specific Gravity	No data available	**solubility**	No information available.
Evaporation rate	No information available	**Vapor Pressure @20°C (kPa)**	No information available
Vapor density	No data available	**VOC Content(%)**	Not applicable

10. STABILITY AND REACTIVITY

Stability Stable under recommended storage conditions.

Incompatible products None known based on information supplied.

Conditions to avoid None known based on information supplied.

Hazardous decomposition products None known based on information supplied.

Hazardous polymerization Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product Information Product does not present an acute toxicity hazard based on known or supplied information

Chronic toxicity

Target Organ Effects None known.

12. ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Sodium azide		0.8: 96 h Oncorhynchus mykiss mg/L LC50 0.7: 96 h Lepomis macrochirus mg/L LC50 5.46: 96 h Pimephales promelas mg/L LC50 flow-through		

13. DISPOSAL CONSIDERATIONS

Waste disposal methods This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated packaging Do not re-use empty containers.

US EPA Waste Number P105

Chemical Name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Sodium azide - 26628-22-8		P105		

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste Status
Sodium azide	Ignitable Reactive

14. TRANSPORT INFORMATION

DOT Not dangerous goods

IATA Not dangerous goods

ADR Not dangerous goods

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	no
Chronic Health Hazard	no
Fire Hazard	no
Sudden Release of Pressure Hazard	no
Reactive Hazard	no

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Sodium azide	1000 lb	1000 lb	RQ 1000 lb final RQ RQ 454 kg final RQ

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Sodium azide	X	X	X		X

International Regulations

WHMIS Note: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H300 + H310 - Fatal if swallowed or in contact with skin H400 - Very toxic to aquatic life H410 - Very toxic to aquatic life with long lasting effects

Revision Date	28-Dec-2017
Revision Note	No information available.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of MSDS