

KIT COMPONENTS

PRODUCT CODE	DESCRIPTION
NEL871001KT	Opal Polaris 7 Color Automation IHC Detection Kit (50 slides)
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, 1X, 100mL
ARH1001EA	PolyHRP Broad Spectrum
DMSO0100UL	DMSO
OP-001008	Opal Polaris 780

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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 hazardous 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)**



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)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: 1X Plus Automation Amplification Diluent

(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/m ³
10043-35-3	boric acid	6 mg/m ³
25322-68-3	Polyethylene glycol	30 mg/m ³
7722-84-1	hydrogen peroxide solution	10 ppm
12058-66-1	Sodium Stannate	11 mg/m ³

· PAC-2:

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

· PAC-3:

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

7 Handling and storage

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

(Contd. on page 3)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: 1X Plus Automation Amplification Diluent

(Contd. of page 2)

- **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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: 1X Plus Automation Amplification Diluent

(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.

US

(Contd. on page 5)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: 1X Plus Automation Amplification Diluent

(Contd. of page 4)

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
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- **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.

- **Ecotoxicological 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

(Contd. on page 6)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: 1X Plus Automation Amplification Diluent

(Contd. of page 5)

- | | |
|---|-----------------|
| · 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 MARPOL 73/78 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
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· **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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: 1X Plus Automation Amplification Diluent

(Contd. of page 6)

7722-84-1	hydrogen peroxide solution
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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

US

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*
- **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

Kit Components

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)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 480

(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%
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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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 480

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 480

(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.

(Contd. on page 5)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 480

(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.
- **Ecotoxicological effects:** N/A
- **Other information:** N/A
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.

(Contd. on page 6)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 480


(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 | 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
MARPOL 73/78 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 480

(Contd. of page 6)

· IMDG

- **Limited quantities (LQ)**
- **Excepted quantities (EQ)**

5 kg

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

(Contd. on page 8)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 480

(Contd. of page 7)

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

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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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 520 Reagent

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 520 Reagent

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 520 Reagent

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 520 Reagent

(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.
- **Ecotoxicological effects:** N/A
- **Other information:** N/A
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.

(Contd. on page 6)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 520 Reagent


(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 | UN2811 |
| · ADR, IMDG, IATA | |
| · UN proper shipping name | 2811 TOXIC SOLID, ORGANIC, N.O.S. (4-
IODOPHENYLBORONIC ACID) |
| · ADR | |
| · 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
MARPOL 73/78 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 520 Reagent

(Contd. of page 6)

<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	5 kg Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
<ul style="list-style-type: none"> · 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

(Contd. on page 8)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 520 Reagent

(Contd. of page 7)

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

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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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 570 Reagent

(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%
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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)

US

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REVIEWED ON 11/1/2019

Trade name: Opal 570 Reagent

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 570 Reagent

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 570 Reagent

(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.
- **Ecotoxicological effects:** N/A
- **Other information:** N/A
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.

(Contd. on page 6)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 570 Reagent


(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 | UN2811 |
| · ADR, IMDG, IATA | |
| · UN proper shipping name | 2811 TOXIC SOLID, ORGANIC, N.O.S. (4-
IODOPHENYLBORONIC ACID) |
| · ADR | TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC
ACID) |
| · IMDG, IATA | |
| · Transport hazard class(es) | |
| · ADR, IMDG, IATA | |
|  | |
| · Class | 6.1 Toxic substances |
| · Label | 6.1 |
| · Packing group | III |
| · ADR, IMDG, IATA | |
| · 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
MARPOL 73/78 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 570 Reagent

(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

(Contd. on page 8)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 570 Reagent

(Contd. of page 7)

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

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 620 Reagent

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 620 Reagent

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 620 Reagent

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 620 Reagent

(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.
- **Ecotoxicological effects:** N/A
- **Other information:** N/A
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.

(Contd. on page 6)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 620 Reagent


(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 | UN2811 |
| · ADR, IMDG, IATA | |
| · UN proper shipping name | 2811 TOXIC SOLID, ORGANIC, N.O.S. (4-
IODOPHENYLBORONIC ACID) |
| · ADR | |
| · 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
MARPOL 73/78 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 620 Reagent

(Contd. of page 6)

<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	5 kg Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
<ul style="list-style-type: none"> · 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

(Contd. on page 8)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 620 Reagent

(Contd. of page 7)

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

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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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 690 Reagent

(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%
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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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 690 Reagent

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 690 Reagent

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 690 Reagent

(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.
- **Ecotoxicological effects:** N/A
- **Other information:** N/A
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.

(Contd. on page 6)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 690 Reagent


(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 | UN2811 |
| · ADR, IMDG, IATA | |
| · UN proper shipping name | 2811 TOXIC SOLID, ORGANIC, N.O.S. (4-
IODOPHENYLBORONIC ACID) |
| · ADR | TOXIC SOLID, ORGANIC, N.O.S. (4-IODOPHENYLBORONIC
ACID) |
| · IMDG, IATA | |
| · Transport hazard class(es) | |
| · ADR, IMDG, IATA | |
|  | |
| · Class | 6.1 Toxic substances |
| · Label | 6.1 |
| · Packing group | III |
| · ADR, IMDG, IATA | |
| · 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
MARPOL 73/78 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 690 Reagent

(Contd. of page 6)

<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	5 kg Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
<ul style="list-style-type: none"> · 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

(Contd. on page 8)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal 690 Reagent

(Contd. of page 7)

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

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

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)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal TSA-DIG Reagent

(Contd. of page 1)

- **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-I:**

Substance is not listed.

(Contd. on page 3)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal TSA-DIG Reagent

(Contd. of page 2)

· 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal TSA-DIG Reagent

· Eye protection:

(Contd. of page 3)



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)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal TSA-DIG Reagent

(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.
- **Ecotoxic 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal TSA-DIG Reagent

(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 MARPOL 73/78 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)

-US-

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal TSA-DIG Reagent

(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

-US-

PRINTING DATE 11/1/2019

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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 hazardous 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Spectral DAPI

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Spectral DAPI

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Spectral DAPI

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Spectral DAPI

(Contd. of page 4)

- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Ecotoxicological 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 MARPOL 73/78 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Spectral DAPI

(Contd. of page 5)

· 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

-US-

PRINTING DATE 11/1/2019

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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

(Contd. on page 2)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Antibody Diluent, 1X, 100mL

(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/m ³
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- **PAC-2:**

1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride	130 mg/m ³
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(Contd. on page 3)

- US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Antibody Diluent, 1X, 100mL

(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)

US

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Trade name: Antibody Diluent, 1X, 100mL

(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
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 · **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)

Flash point:	Not applicable.
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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.
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 · **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
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Density:	Not determined.
-----------------	-----------------

Relative density	Not determined.
-------------------------	-----------------

Vapor density	Not determined.
----------------------	-----------------

Evaporation rate	Not determined.
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 · **Solubility in / Miscibility with**

Water:	Not miscible or difficult to mix.
---------------	-----------------------------------

Partition coefficient (n-octanol/water):	Not determined.
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 · **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.
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10 Stability and reactivity

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

(Contd. on page 5)

US

PRINTING DATE 11/1/2019

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Trade name: Antibody Diluent, 1X, 100mL

(Contd. of page 4)

- **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.
- **Ecotoxicological 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Antibody Diluent, 1X, 100mL

(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 MARPOL 73/78 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Antibody Diluent, 1X, 100mL

(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

US

PRINTING DATE 11/1/2019

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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

(Contd. on page 2)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: PolyHRP Broad Spectrum

(Contd. of page 1)

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%
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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/m ³
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- **PAC-2:**

1185-53-1	2-amino-2-(hydroxymethyl)propane-1,3-diolhydrochloride	130 mg/m ³
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(Contd. on page 3)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: PolyHRP Broad Spectrum

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: PolyHRP Broad Spectrum

(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
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 · **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)

Flash point:	Not applicable.
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Flammability (solid, gaseous):	Not applicable.
---------------------------------------	-----------------

Decomposition temperature:	Not determined.
-----------------------------------	-----------------

Auto igniting:	Product is not selfigniting.
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Danger of explosion:	Product does not present an explosion hazard.
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 · **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
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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.
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Partition coefficient (n-octanol/water):	Not determined.
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 · **Viscosity:**

Dynamic:	Not determined.
Kinematic:	Not determined.

 · **Solvent content:**

Water:	78.2 %
VOC content:	0.00 %

Solids content:	1.7 %
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Other information	No further relevant information available.
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10 Stability and reactivity

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

(Contd. on page 5)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: PolyHRP Broad Spectrum

(Contd. of page 4)

- **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.
- **Ecotoxicological 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)

US

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REVIEWED ON 11/1/2019

Trade name: PolyHRP Broad Spectrum

(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 MARPOL 73/78 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)

US

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REVIEWED ON 11/1/2019

Trade name: PolyHRP Broad Spectrum

(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

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: DMSO

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



Health = 2

Fire = 1

Reactivity = 0

(Contd. of page 1)

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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: DMSO

(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)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: DMSO

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: DMSO

(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.
- **Ecotoxicological effects:** N/A
- **Other information:** N/A
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

(Contd. on page 6)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: DMSO

(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 MARPOL 73/78 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: DMSO

(Contd. of page 6)

 · **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

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

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 hazardous 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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 780

(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/m ³
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· PAC-2:

26628-22-8	sodium azide	0.29 mg/m ³
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· PAC-3:

26628-22-8	sodium azide	5.3 mg/m ³
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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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 780

(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)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 780

(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.

(Contd. on page 5)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 780

(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 MARPOL 73/78 and the IBC Code	Not applicable.
· UN "Model Regulation":	not regulated

US

(Contd. on page 6)

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 780

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

26628-22-8	sodium azide
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· **TSCA (Toxic Substances Control Act):**

9048-46-8	Bovine Serum Albumin
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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
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· **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

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· **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

(Contd. on page 7)

US

PRINTING DATE 11/1/2019

REVIEWED ON 11/1/2019

Trade name: Opal Polaris 780

(Contd. of page 6)

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

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