

Opal Anti-Ms + Rb HRP and Opal Anti-Ms +
 Rb Diluent

ARH3001EA, ARD3001EA

SDS Preparation Date (mm/dd/yyyy): 05/15/2023

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SECTION 1. IDENTIFICATION

Product identifier used on the label

 : **Opal Anti-Ms + Rb HRP and Opal Anti-Ms + Rb Diluent**

Other means of identification : ARH3001EA, ARD3001EA

Recommended use of the chemical and restrictions on use

 : Research and development only.
 Restrictions on use: Professional use only

Chemical family

: Mixture

 Name, address, and telephone number
 of the supplier:

Akoya Biosciences, Inc.

 100 Campus Dr, 6th Floor
 Marlborough, MA, U.S.A.
 01752

Supplier's Telephone # : (888) 834 8892

24 Hr. Emergency Tel # : Not available.

 Name, address, and telephone number of
 the manufacturer:

Refer to supplier

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Clear liquid. Odorless.

Most important hazards:

May cause an allergic skin reaction. Occupational exposure to the substance or mixture may cause adverse effects. For further information, please refer to section 11 of the SDS.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. See Section 12 for more environmental information.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification :

Acute toxicity, inhalation - Category 4

Skin sensitization - Category 1A

Label elements

Hazard pictogram(s)



Signal Word

Warning!

Hazard statement(s)

Harmful if inhaled.

May cause an allergic skin reaction.

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Precautionary statement(s)

Avoid breathing mist or vapor.
 Wash thoroughly after handling.
 Contaminated work clothing must not be allowed out of the workplace.
 Wear protective gloves.

IF ON SKIN: Wash with plenty of soap and water.
 If skin irritation or rash occurs: Get medical advice/attention.
 Wash contaminated clothing before reuse.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 Call a poison center/doctor if you feel unwell.
 Store locked up.
 Store in a well-ventilated place. Keep container tightly closed.

Dispose of contents/container in accordance with local regulation.

Other hazards

Other hazards which do not result in classification:
 Toxic fumes, gases or vapours may evolve on burning. Inhalation of mists or sprays may mildly irritate the upper respiratory tract and cause coughing or sneezing. May cause slight eye and skin irritation. May cause gastrointestinal irritation.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration (% by weight)</u>
Proprietary	N/Av	N/Av	0.1 - 1.0

The exact concentrations of the above listed chemicals are being withheld as a trade secret.

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : Do not induce vomiting. Never give anything by mouth to a person who is unconscious or is having convulsions. Call a physician.
- Inhalation* : If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing stops, provide artificial respiration. Call a poison center/doctor if you feel unwell.
- Skin contact* : Wash off with plenty of water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.
- Eye contact* : Immediately flush eye(s) with plenty of water. If irritation or symptoms develop, seek medical attention.

Most important symptoms and effects, both acute and delayed

- : Harmful if inhaled. Inhalation of mists or sprays may mildly irritate the upper respiratory tract and cause coughing or sneezing. May cause an allergic skin reaction (e.g. swelling, rash and eczema).
 Direct eye contact may cause slight redness. Direct skin contact may cause temporary redness.
 Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Indication of any immediate medical attention and special treatment needed

- : Provide general supportive measures and treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

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Suitable extinguishing media

- : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

Unsuitable extinguishing media

- : Do not use water jet as extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture / Conditions of flammability

- : Not classified as flammable. Toxic fumes, gases or vapors may evolve on burning.

Flammability classification (OSHA 29 CFR 1910.106)

- : Not classified as flammable.

Hazardous combustion products

- : Carbon oxides. Metal oxides. Chlorine compounds. Acrolein.

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

- : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

Special fire-fighting procedures

- : Move containers from fire area if safe to do so. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- : Wear appropriate protective equipment. Refer to protective measures listed in sections 7 and 8.

Environmental precautions

- : Prevent product from entering drains, sewers, waterways and soil.

Methods and material for containment and cleaning up

- : Ventilate the area. Remove all sources of ignition. Prevent further leakage or spillage if safe to do so. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand). Pick up and transfer to properly labeled containers. Contaminated absorbent material may pose the same hazards as the spilled product. Contact the proper local authorities. For waste disposal, see Section 13 of the SDS.

Special spill response procedures

- : If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the National Response Center in the United States (phone: 1-800-424-8802).

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

- : Use with adequate ventilation. Wear suitable protective equipment during handling. Avoid breathing dust, fume or vapors. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and direct flame. Keep away from incompatibles. Keep containers tightly closed when not in use. Wash thoroughly after handling.

Conditions for safe storage

- : Store in cool/well-ventilated place. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Keep away from incompatibles. Keep refrigerated.

Incompatible materials

- : Strong oxidizing agents; Strong acids; Strong bases

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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:			
<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u> <u>STEL</u>
Proprietary	N/Av	N/Av	N/Av N/Av

Exposure controls

Ventilation and engineering measures

- : Provide adequate ventilation. Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. In case of insufficient ventilation wear suitable respiratory equipment.

Respiratory protection

- : If airborne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02. Advice should be sought from respiratory protection specialists.

Skin protection

- : Gloves impervious to the material are recommended. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Wear sufficient clothing to prevent skin contact.

Eye / face protection

- : Wear as appropriate: Safety glasses with side shields; Tightly fitting safety goggles.

Other protective equipment

- : Ensure that eyewash stations and safety showers are close to the workstation location. Other equipment may be required depending on workplace standards.

General hygiene considerations

- : Avoid breathing dust, fume or vapors. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid
Yellow, Red, Orange, Colorless

Odour : Odorless.

Odour threshold : N/Av

pH : N/Av

Melting Point/Freezing point : N/Av

Initial boiling point and boiling range

: N/Av

Flash point : None.

Flashpoint (Method) : N/Av

Evaporation rate (BuAe = 1) : N/Av

Flammability (solid, gas) : Not applicable.

Lower flammable limit (% by vol.)

: N/Av

Upper flammable limit (% by vol.)

: N/Av

Oxidizing properties : None.

Explosive properties : Not explosive

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Vapour pressure : N/Av
 Vapour density : N/Av
 Relative density / Specific gravity : N/Av
 Solubility in water : N/Av
 Other solubility(ies) : N/Av
 Partition coefficient: n-octanol/water or Coefficient of water/oil distribution : N/Av
 Auto-ignition temperature : N/Av
 Decomposition temperature : N/Av
 Viscosity : N/Av
 Volatiles (% by weight) : N/Av
 Volatile organic Compounds (VOC's) : N/Av
 Absolute pressure of container : N/Av
 Flame projection length : N/Av
 Other physical/chemical comments : No additional information.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not normally reactive.
 Chemical stability : Stable under normal conditions.
 Possibility of hazardous reactions : Hazardous polymerization does not occur.
 Conditions to avoid : Direct sources of heat. Do not use in areas without adequate ventilation. Avoid contact with incompatible materials.
 Incompatible materials : Strong oxidizing agents; Strong acids; Strong bases
 Hazardous decomposition products : None known, refer to hazardous combustion products in Section 5.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

Routes of entry inhalation : YES
 Routes of entry skin & eye : YES
 Routes of entry Ingestion : YES
 Routes of exposure skin absorption : NO

Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

: Harmful if inhaled. Inhalation of mists or sprays may mildly irritate the upper respiratory tract and cause coughing or sneezing.

Sign and symptoms ingestion

: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

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Sign and symptoms skin : Direct skin contact may cause slight or mild, transient irritation.

Sign and symptoms eyes : Direct eye contact may cause slight or mild, transient irritation.

Potential Chronic Health Effects

: None known or reported by the manufacturer.

Mutagenicity : No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity : Not expected to have carcinogenic effects. No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive effects & Teratogenicity

: This product is not expected to cause reproductive or developmental effects.

Sensitization to material : May cause an allergic skin reaction (e.g. swelling, rash and eczema). Not expected to be a respiratory sensitizer.

Specific target organ effects : According to the classification criteria of Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015), this product is not expected to cause specific target organ toxicity (STOT) through single or repeated exposures.

Medical conditions aggravated by overexposure

: Pre-existing skin, eye and respiratory disorders.

Synergistic materials : None known or reported by the manufacturer.

Toxicological data : Not classified for acute toxicity based on available data. No data is available on the product itself.
 ATE oral =>5000 mg/kg
 ATE dermal =>5000 mg/kg
 ATE inhalation (vapours) = 11 mg/L

See below for individual ingredient acute toxicity data.

<u>Chemical name</u>	LC₅₀(4hr)	LD₅₀	
	<u>inh, rat</u>	<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Proprietary	0.11 mg/kg	120mg/kg	242 mg/kg

Other important toxicological hazards

: None known or reported by the manufacturer.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity : Harmful to aquatic life with long lasting effects. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.

Ecotoxicity data:

<u>Ingredients</u>	CAS #	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Proprietary	N/Av	N/Av	N/Av	None.

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<u>Ingredients</u>	CAS #	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Proprietary	N/Av	N/Av	N/Av	None.

<u>Ingredients</u>	CAS #	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Proprietary	N/Av	N/Av	N/Av	None.

Persistence and degradability

: The product itself has not been tested.

Bioaccumulation potential

: The product itself has not been tested.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Proprietary (CAS N/Av)	-0.26	N/Av

Mobility in soil

: The product itself has not been tested.

Other Adverse Environmental effects

: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal

: Handle in accordance with good industrial hygiene and safety practice. Refer to protective measures listed in sections 7 and 8. This material and its container must be disposed of in a safe way.

Methods of Disposal

: Dispose in accordance with all applicable federal, state, provincial and local regulations.

RCRA

: If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

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SECTION 14. TRANSPORT INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
49CFR/DOT	None.	Not regulated.	not regulated	none	
49CFR/DOT Additional information	None.				
TDG	None.	Not regulated.	not regulated	none	
TDG Additional information	None.				
ICAO/IATA	None.	Not regulated.	not regulated	none	
ICAO/IATA Additional information	None.				
IMDG	None.	Not regulated.	not regulated	none	
IMDG Additional information	None.				

Special precautions for user : Appropriate advice on safety must accompany the package.

Environmental hazards : This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See Section 12 for more environmental information.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: Not applicable.

SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

<u>Ingredients</u>	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	de minimus Concentration
Proprietary	N/Av	Yes	None.	None.	Toxic Chemical No	N/Ap

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Acute toxicity;Skin sensitization.

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US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

<u>Ingredients</u>	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Proprietary	N/Av	No	N/Ap	No	No	No	No	No	No

Canadian Information:

International Information:

Components listed below are present on the following International Inventory list:

<u>Ingredients</u>	CAS #	European EINECS	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	New Zealand IOC
Proprietary	N/Av	N/Av	N/Av	N/Av	N/Av	N/Av	N/Av	N/Av

SECTION 16. OTHER INFORMATION

Legend

: ACGIH: American Conference of Governmental Industrial Hygienists
 AICS: Australian Inventory of Chemical Substances
 CAS: Chemical Abstract Services
 CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
 CFR: Code of Federal Regulations
 CSA: Canadian Standards Association
 DOT: Department of Transportation
 EC50: Effective Concentration 50%
 ENCS: Existing and New Chemical Substances
 EPA: Environmental Protection Agency
 IARC: International Agency for Research on Cancer
 IECSC: Inventory of Existing Chemical Substances
 IMDG: International Maritime Dangerous Goods
 IOC: Inventory of Chemicals
 KECI: Korean Existing Chemicals Inventory
 KECL: Korean Existing Chemicals List
 LC: Lethal Concentration /LD: Lethal Dose
 N/Ap: Not Applicable /N/Av: Not Available
 NIOSH: National Institute of Occupational Safety and Health
 NOEC: No observable effect concentration
 NTP: National Toxicology Program
 OECD: Organisation for Economic Co-operation and Development
 OSHA: Occupational Safety and Health Administration
 PEL: Permissible exposure limit
 PICCS: Philippine Inventory of Chemicals and Chemical Substances
 SARA: Superfund Amendments and Reauthorization Act
 STEL: Short Term Exposure Limit
 TDG: Canadian Transportation of Dangerous Goods Act & Regulations
 TLV: Threshold Limit Values

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- References**
- TSCA: Toxic Substance Control Act
 - TWA: Time Weighted Average
 - : 1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices
 - 2. ECHA - European Chemical Agency
 - 3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases
 - 4. Safety Data Sheets from manufacturer.
 - 5. US EPA Title III List of Lists
 - 6. California Proposition 65 List
 - 7. OECD - The Global Portal to Information on Chemical Substances - eChemPortal

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Other special considerations for handling

: Provide adequate information, instruction and training for operators.

<p><u>Prepared for:</u></p> <p>Akoya Biosciences, Inc. 100 Campus Dr., 6th Floor Marlborough, MA 01752 Telephone: (855) 896 8401</p>	
<p><u>Prepared by:</u></p> <p>ICC The Compliance Center Inc. Telephone: (888) 442-9628 (U.S.): (888) 977-4834 (Canada) http://www.thecompliancecenter.com</p>	

DISCLAIMER

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