

SAFETY DATA SHEET

According to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Use restricted under TSCA to research and development or
as analytical reagent

SECTION 1. Product and Company Identification

Product name	Binuclease	Catalog number	OPGG00003
Supplier Information	Aviva Systems Biology Corp. 10211 Pacific Mesa Blvd, Ste 401 San Diego, CA 92121		
Emergency Contact Information	858-552-6979 (Tel) 911 (Fire, Medical)		

SECTION 2. Composition

From yeast cells with cloned gene encoding genetically engineered *Serratia marcescens* endonuclease

CAS No.	9025-65-4	E.C.	3.1.30.2
Synonyms	Serratia marcescens Binuclease; unrestricted endonuclease		

SECTION 3. Hazard(s) Identification

GHS-Labeling	Not a dangerous substance according to GHS.
Other hazards	N/A

SECTION 4. First aid measures

Inhalation	May cause respiratory irritation. Provide fresh air
Skin contact	May cause skin irritation. Take off immediately all contaminated clothing. Rinse skin with soap and water/shower.
Eye contact	Rinse out with plenty of water. Remove contact lenses, if present.
Ingestion	May cause skin irritation. Rinse mouth with water and drink two glasses of water. Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed:

Cyanosis, gastric pain, Drowsiness, Diarrhea, Vomiting, Headache

Indication of any immediate medical attention and special treatment needed:

None.

SECTION 5. Fire-fighting measures

Extinguishing media	Water spray, Foam, Carbon dioxide (CO ₂), Dry powder
Special hazards arising from the substance or mixture	Mixture with combustible ingredients. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapors possible in the event of fire. Fire may cause evolution of Acrolein.
Advice for firefighters	Special protective equipment for fire-fighters Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
Further information	Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Remove persons to safety. Wear breathing apparatus if exposed to vapors/dust/aerosols/gases. Do not breathe vapors, aerosols. Evacuate the danger area, observe emergency procedures, and consult an expert.
Environmental precautions	Do not let product enter drains, surface and ground water. Retain contaminated washing water and dispose of it.
Methods and material for containment and cleaning up	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions Take up with liquid-absorbent material. Dispose of properly. Clean up affected area.

SECTION 7: Handling and storage

Precautions for safe handling	Observe label precautions. Conditions for safe storage, including any incompatibilities. Tightly closed. Store at -20°C (-3°F). Transport with dry ice.
Advice on general occupational hygiene	Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feeding stuffs.

SECTION 8. Exposure controls/personal protection

Control parameters	This information is not available.
Exposure controls	General ventilation. Personal protective equipment: Not required Eye/face protection: Safety glasses Skin protection: Wear suitable gloves. Glove material: butyl-rubber Glove thickness: 0.7 mm Respiratory protection: Not required

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Powder / Liquid	Color	White / colorless
Odor	Odorless	pH (value)	N/A / pH 8.0
Melting point	N/A	Boiling point	100 °C
Flash point	N/A	Evaporation rate	N/A
Flammability	N/A	Density	N/A
Explosion limit	N/A	Vapor pressure	N/A
Explosive properties	Not classified as explosive	Oxidizing properties	None
Water solubility	Soluble	Auto-ignition temperature	N/A
Decomposition temperature	N/A		

SECTION 10: Stability and reactivity

Reactivity	Forms explosive mixtures with air on intense heating.
Chemical stability	The product is chemically stable under standard ambient conditions (room temperature).
Risk of explosion with	halogens, Strong oxidizing agents, peroxi compounds, hydrogen peroxide, Nitriles perchloric acid, with, Lead oxides Nitric acid, with, sulfuric acid
Risk of ignition or formation of inflammable gases or vapors with	potassium permanganate, hydrides, calcium hypochlorite Fluorine, with, Lead oxides
Exothermic reaction with	Oxides of phosphorus, chromium(VI) oxide, phosphorus halides Acetic anhydride, with, phosphorous oxichloride ANILINE, with, Nitrobenzene
Conditions to avoid	Heating (decomposition).
Incompatible materials	No information available
Hazardous decomposition products	No information available

SECTION 11. Toxicological information

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

This mixture does not meet the criteria for classification.

Likely route of exposure	Eye contact, Skin contact
Serious eye damage/eye irritation	The classification criteria for this hazard class are not met. Shall not be classified as seriously damaging to the eye or eye irritant.
Skin corrosion/irritation	The classification criteria for this hazard class are not met. Shall not be classified as corrosive/irritant to skin.
Acute toxicity	The classification criteria for these hazard classes are not met.
Germ cell mutagenicity	Shall not be classified as germ cell mutagenic.
Respiratory or skin sensitization	The classification criteria for these hazard classes are not met.
Acute inhalation toxicity	The substance or mixture is not classified as specific target organ toxicant, single or repeated exposure.
Aspiration hazard	The classification criteria for this hazard class are not met.
Carcinogenicity	The classification criteria for this hazard class are not met.
Specific target organ toxicity	The classification criteria for this hazard class are not met. Shall not be classified as a specific target organ toxicant

SECTION 12: Ecological information

Toxicity	Not hazardous to the aquatic environment.	Persistence and degradability	N/A
Bioaccumulative potential	N/A	Mobility in soil	N/A
Results of PBT and vPvB assessment	N/A	Other adverse effects	N/A

SECTION 13: Disposal considerations

Waste treatment methods

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

UN number	not subject to transport regulations
UN proper shipping name	N/A
Transport hazard class(es)	None
Packing group	N/A
Environmental hazards	non-environmentally hazardous acc. to the dangerous goods regulations
Special precautions for user	There is no additional information.
Transport in bulk according to Annex II of MARPOL and the IBC Code	N/A

Information for each of the UN Model Regulations

Transport of dangerous goods by road or rail (49 CFR US DOT)

Not subject to transport regulations.

International Maritime Dangerous Goods Code (IMDG)

Not subject to IMDG.

International Civil Aviation Organization (ICAO-IATA/DGR)

Not subject to ICAO-IATA.

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question
 Industry or sector specific available guidance(s) NPCA-HMIS® III

Hazardous Materials Identification System. American Coatings Association.

NPCA-HMIS® III

Hazardous Materials Identification System. American Coatings Association

Category	Rating	Description
Chronic Health	-	None
Flammability	0	No significant risk to health
Physical hazard	0	Material that will not burn under typical fire conditions
Personal protection	0	Material that is normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosive

NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).

Category	Rating	Description
Flammability	0	material that will not burn under typical fire conditions
Health	0	material that, under emergency conditions, would offer no hazard beyond that of ordinary combustible material
Instability	0	material that is normally stable, even under fire conditions
Special hazard	-	

Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information, including date of preparation or last revision

Key literature references and sources for data

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT). International Maritime Dangerous Goods Code (IMDG).

Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).