

IENCES® G-Biosciences, St Louis, MO, USA | 1-800-628-7730 | 1-314-991-6034 | technical@GBiosciences.com

A Geno Technology, Inc. (USA) brand name

Safety Data Sheet

Cat. # 786-451

PhosphataseArrest[™] II [100X]

Size: 1ml





Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 Revision date: 5/11/2017 Version: 1.1

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture nulation (EC) No. 1272/2008 [CLP] sificatio ding to Pe CL

Classification	according to	o Regulation	(EC) NO.	12/2/2008	[CLP]

Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Reproductive toxicity, Category 1B	H360
Full text of H statements : see section 16	

Adverse physicochemical, human health and environmental effects

May damage fertility or the unborn child. Causes skin irritation. Causes serious eye irritation.

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/20 Hazard pictograms (CLP)	08 [CLP] GHS07 GHS08
CLP Signal word	: Danger
Hazardous ingredients	: sodium molybdate, dihydrate; Sodium Orthovanadate
Hazard statements (CLP)	: H315 - Causes skin irritation. H319 - Causes serious eye irritation. H360 - May damage fertility or the unborn child.
Precautionary statements (CLP)	 P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P264 - Wash hands, forearms and face thoroughly after handling. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P302+P352 - IF ON SKIN: Wash with plenty of water. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313 - IF exposed or concerned: Get medical advice/attention. P321 - Specific treatment (see supplemental first aid instruction on this label). P332+P313 - If skin irritation occurs: Get medical advice/attention. P337+P313 - If eye irritation persists: Get medical advice/attention. P362+P364 - Take off contaminated clothing and wash it before reuse. P405 - Store locked up. P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
2.3. Other hazards	

No additional information available

SECTION 3: Composition/informat 3.1. Substances Not applicable 3.2. Mixtures	tion on ingredients		
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Deionized water	(CAS-No.) 7732-18-5	> 79	Not classified
sodium molybdate, dihydrate	(CAS-No.) 10102-40-6	< 5	Not classified
sodium fluoride	(CAS-No.) 7681-49-4 (EC-No.) 231-667-8 (EC Index-No.) 009-004-00-7	< 2	Acute Tox. 3 (Oral), H301 Skin Irrit. 2, H315 Eye Irrit. 2, H319
Sodium Orthovanadate	(CAS-No.) 13721-39-6 (EC-No.) 237-287-9	< 2	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332
1H-imidazole	(CAS-No.) 288-32-4 (EC-No.) 206-019-2 (EC Index-No.) 613-319-00-0	<= 2	Acute Tox. 4 (Oral), H302 Skin Corr. 1C, H314 Repr. 1B, H360D

Full text of H-statements: see section 16

SECTION 4: First aid measures 4.1. Description of first aid measures	
First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
First-aid measures after inhalation	: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Rinse with water. Do not apply (chemical) neutralizing agents without medical advice. Soap may be used. Take victim to a doctor if irritation persists.

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

First-aid measures after eye contact	: Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply (chemical) neutralizing agents without medical advice. Take victim to an ophthalmologist if irritation persists.
First-aid measures after ingestion	: Rinse mouth with water. Do not apply (chemical) neutralizing agents without medical advice. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.
4.2. Most important symptoms and effects, b	ooth acute and delayed
Symptoms/effects after inhalation	: AFTER INHALATION OF DUST/MIST: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes.
Symptoms/effects after skin contact	: Slight irritation.
Symptoms/effects after eye contact	: Irritation of the eye tissue.
Symptoms/effects after ingestion	: Gastrointestinal complaints. Nausea. Vomiting. Diarrhoea. AFTER INGESTION OF HIGH QUANTITIES: Slowing heart action. Low arterial pressure. Blue/grey discolouration of the skin.
Chronic symptoms	: Skin rash/inflammation.

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

SECTION 5: Firefighting measures	
5.1. Extinguishing media	
Suitable extinguishing media	: Water spray. Dry powder. Foam.
5.2. Special hazards arising from the substa	nce or mixture
Fire hazard	: DIRECT FIRE HAZARD: Non combustible.
Explosion hazard	: DIRECT EXPLOSION HAZARD: No direct explosion hazard.
Hazardous decomposition products in case of fire	: Toxic fumes may be released.
5.3. Advice for firefighters	
Precautionary measures fire	: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	: Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water.
Protection during firefighting	: Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures		
6.1. Personal precautions, protective equipment and emergency procedures		
6.1.1. For non-emergency personnel		
Protective equipment	: Gloves. Safety glasses. Protective clothing. Dust cloud production: compressed air/oxygen apparatus.	
Emergency procedures	: Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.	
6.1.2. For emergency responders		
Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".	
6.2. Environmental precautions		
Avoid release to the environment.		
6.3. Methods and material for containment a	and cleaning up	
For containment	: Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.	
Methods for cleaning up	: Stop dust cloud by humidifying. Scoop solid spill into closing containers. Wash down leftovers with plenty of water. Wash clothing and equipment after handling.	
Other information	: Dispose of materials or solid residues at an authorized site.	
6.4. Reference to other sections		
For further information refer to section 13.		

SECTION 7: Handling and storage		
7.1. Precautions for safe handling		
Precautions for safe handling	: Avoid raising dust. Keep away from naked flames/heat. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Clean contaminated clothing. Keep container tightly closed.	
Hygiene measures	: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.	
7.2. Conditions for safe storage, including any incompatibilities		
Storage conditions	: Store in a well-ventilated place. Keep cool. Store locked up.	
Storage temperature	: 4 °C	

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection			
8.1. Control parameters			
sodium molybdate, dihydrate (10102-40-6)			
United Kingdom - Occupational Exposure Limits			
WEL TWA (mg/m³)		5 mg/m ³	
WEL STEL (mg/m ³)		10 mg/m ³	
sodium fluoride (7681-49-4)			
EU - Occupational Exposure Limits			
IOELV TWA (mg/m ³)		2.5 mg/m ³	
United Kingdom - Occupational Exposure	Limits		
WEL TWA (mg/m³)		2.5 mg/m ³	
PhosphataseArrest™ II [100X]			
DNEL/DMEL (Workers)			
Long-term - systemic effects, inhalation	17.6	17.63 mg/m ³	
DNEL/DMEL (General population)			
Long-term - systemic effects, inhalation	4.35	4.35 mg/m ³	
PNEC (Water)			
PNEC aqua (freshwater)	0.05	0.05 mg/l	
PNEC aqua (marine water)	0.00	0.005 mg/l	
PNEC (STP)			
PNEC sewage treatment plant	50 m	50 mg/l	
8.2. Exposure controls			
Appropriate engineering controls:			
Ensure good ventilation of the work station.			
Hand protection:			
Protective gloves against chemicals (EN374)			
Eye protection:			
Safety glasses. In case of dust production: protective goggles			
Skin and body protection:			
Protective electrica			

Protective clothing

Respiratory protection:

Dust production: dust mask with filter type P1

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties		
9.1. Information on basic physical and chemical properties		
Physical state	: Liquid	
Colour	: Clear.	
Odour	: No data available	
Odour threshold	: No data available	
pH	: No data available	
Relative evaporation rate (butylacetate=1)	: No data available	
Melting point	: Not applicable	
Freezing point	: No data available	
Boiling point	: No data available	

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available
9.2 Other information	

9.2. Other information No additional information available

SECTION 10: Stability and reactivity
10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability
Stable under normal conditions.
10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.
10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).
10.5. Incompatible materials
No additional information available
10.6. Hazardous decomposition products
Hazardous decomposition products.

SECTION 11: Toxicological information		
11.1. Information on toxicological effects	1.1. Information on toxicological effects	
Acute toxicity (oral)	: Not classified	
Acute toxicity (dermal)	: Not classified	
Acute toxicity (inhalation)	: Not classified	
sodium molybdate, dihydrate (10102-40-6)		
LD50 oral rat	4233 mg/kg (Rat, Oral)	
LD50 dermal rat	> 2000 mg/kg (Rat, Dermal)	

sodium fluoride (7681-49-4)	
LD50 oral rat	52 mg/kg (Rat, Oral)

Sodium Orthovanadate (13721-39-6)	
LD50 oral rat	330 mg/kg (Rat, Oral)

1H-imidazole (288-32-4)	
LD50 oral rat	970 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Experimental value, Oral)
Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: May damage fertility or the unborn child.
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Aspiration hazard

: Not classified

SECTION 12: Ecological information	
12.1. Toxicity	
Ecology - general :	The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Acute aquatic toxicity :	Not classified
Chronic aquatic toxicity :	Not classified
sodium molybdate, dihydrate (10102-40-6)	
LC50 fish 1	644.2 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Pimephales promelas, Semi-static system, Fresh water, Experimental value)
EC50 Daphnia 1	130.9 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
ErC50 (algae)	289.2 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Weight of evidence)

sodium fluoride (7681-49-4)	
LC50 fish 1	> 530 mg/l (96 h, Lepomis macrochirus)
EC50 Daphnia 1	98 mg/l (48 h, Daphnia magna)
EC50 72h algae (1)	1000 mg/l (Scenedesmus subspicatus, Growth)

1H-imidazole (288-32-4)	
LC50 fish 1	283.6 mg/l (Other, 48 h, Leuciscus idus, Static system, Fresh water, Experimental value, Nominal concentration)
EC50 Daphnia 1	341.5 mg/l (EU Method C.2, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Nominal concentration)
ErC50 (algae)	133 mg/l (DIN 38412: German standard methods for the examination of water, waste water and sludge, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Nominal concentration)
12.2. Persistence and degradability	
sodium molybdate, dihydrate (10102-40-6)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

sodium fluoride (7681-49-4)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

Sodium Orthovanadate (13721-39-6)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
1H-imidazole (288-32-4)	

Persistence and degradability	Readily biodegradable in the soil. Readily biodegradable in water.

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

2.3. Bioaccumulative potential	
odium molybdate, dihydrate (10102-40-6)	
CF fish 1	4.9 (28 day(s), Oncorhynchus tshawytscha, Fresh water, Weight of evidence, Anhydrous form)
ioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
odium fluoride (7681-49-4)	
CF fish 1	2.3 (Salmo gairdneri)
ioaccumulative potential	Not bioaccumulative.
	Not bloaccumulative.
odium Orthovanadate (13721-39-6)	
ioaccumulative potential	No bioaccumulation data available.
H-imidazole (288-32-4)	
og Pow	-0.02 (Weight of evidence approach, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 25 °C)
ioaccumulative potential	Not bioaccumulative.
2.4. Mobility in soil	
odium molybdate, dihydrate (10102-40-6)	
cology - soil	No (test)data on mobility of the substance available.
odium fluoride (7681-49-4)	
cology - soil	Toxic to flora.
odium Orthovanadate (13721-39-6)	
cology - soil	No (test)data on mobility of the substance available.
H-imidazole (288-32-4)	
og Koc	1.36 - 2.32 (log Koc, Calculated value)
cology - soil	Low potential for adsorption in soil.
2.5. Results of PBT and vPvB assessment	
component	
odium molybdate, dihydrate (10102-40-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
odium Orthovanadate (13721-39-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
H-imidazole (288-32-4)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

SECTION 13: Disposal considerations	
13.1. Waste treatment methods	
Waste treatment methods	: Waste treatment methods.
Product/Packaging disposal recommendations	: Treat using the best available techniques before discharge into drains or the aquatic environment. Contains no organic halogen which may add to the AOX value. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove to an authorized dump (Class I). Small quantities can be landfilled with the household waste. Precipitate/make insoluble. May be discharged to wastewater treatment installation.

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

: Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No Additional information 1357/2014 and Regulation (EU) No 2017/997. European List of Waste (LoW) code

: 15 01 10* - packaging containing residues of or contaminated by dangerous substances 16 03 03* - inorganic wastes containing dangerous substances

SECTION 44: Transport information		
SECTION 14: Transport information In accordance with ADR / RID / IMDG / IATA / ADN		
14.1. UN number		
UN-No. (ADR)	: Not applicable	
UN-No. (IMDG)	: Not regulated	
UN-No. (IATA)	: Not regulated	
UN-No. (ADN)	: Not applicable	
UN-No. (RID)		
	: Not applicable	
14.2. UN proper shipping name Proper Shipping Name (ADR)	: Not applicable	
Proper Shipping Name (IMDG)	: Not regulated	
Proper Shipping Name (IATA)	: Not regulated	
	-	
Proper Shipping Name (ADN)	: Not applicable	
Proper Shipping Name (RID)	: Not applicable	
14.3. Transport hazard class(es)		
ADR		
Transport hazard class(es) (ADR)	: Not applicable	
IMDG		
Transport hazard class(es) (IMDG)	: Not regulated	
ΙΑΤΑ		
Transport hazard class(es) (IATA)	: Not regulated	
ADN		
Transport hazard class(es) (ADN)	: Not applicable	
RID		
Transport hazard class(es) (RID)	: 8	
14.4. Packing group		
Packing group (ADR)	: III	
Packing group (IMDG)	: Not regulated	
Packing group (IATA)	: Not regulated	
Packing group (ADN)	: Not applicable	
Packing group (RID)	: Not applicable	
14.5. Environmental hazards		
Dangerous for the environment	: No	
Marine pollutant	: No	
Other information	: No supplementary information available	
14.6. Special precautions for user		
Overland transport		
No data available		
Transport by sea		
Not regulated		
Air transport		
Not regulated		
•		
Inland waterway transport		
No data available		
Rail transport		
No data available		
14.7. Transport in bulk according to Annex II of Marpol and the IBC Code		
Not applicable		

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

Substance(s) are not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC.

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Full text of H- and EUH-statements:		
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3	
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4	
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4	
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2	
Repr. 1B	Reproductive toxicity, Category 1B	
Skin Corr. 1C	Skin corrosion/irritation, Category 1C	
Skin Irrit. 2	Skin corrosion/irritation, Category 2	
H301	Toxic if swallowed.	
H302	Harmful if swallowed.	
H312	Harmful in contact with skin.	
H314	Causes severe skin burns and eye damage.	
H315	Causes skin irritation.	
H319	Causes serious eye irritation.	
H332	Harmful if inhaled.	
H360	May damage fertility or the unborn child.	
H360D	May damage the unborn child.	

Safety Data Sheet applicable for regions

: GB - United Kingdom

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.