1. IDENTIFICATION

1.1 Product identifiers

Product name:	Sulfazyme™ PaS
Other name(s):	Arylsulfatase; sulfatase
Product number:	04-PAS
CAS No.:	9016-17-5
EC No.:	3.1.6.1

1.2 Intended uses

Identified uses: Laboratory chemical for research and development.

1.3 Supplier information

Company: Integrated Micro-Chromatography Systems, Inc. (IMCS)
110 Centrum Drive
Irmo, SC 29063

Telephone: +1 (888) 560-2073

Website: www.imcstips.com

1.4 Emergency telephone number

Emergency Phone:	VelocityEHS USA and Canada:	+1 (800) 255-3924
	VelocityEHS International:	+1 (813) 248-0585
	IMCS Technical Support:	+1 (888) 560-2073

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

The product is not classified as a hazardous material.

2.2 Label Elements

No labeling applicable.

2.3 Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

2.4 Unknown acute toxicity

No data available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization: Mixture Other name(s): Arylsulfatase; sulfatase CAS No.: 9016-17-5 EC No.: 3.1.6.1

CAS No.	Chemical Name and Synonyms	Component Hazard Classifications	%
9016-17-5	Arylsulfatase	H317, H334	0.01-1%
26628-22-8	Sodium azide	H301, H310, H318, H370, H372, H401, H411	<0.05%
10035-04-8	Calcium chloride, dihydrate	H319	<0.05%
7365-45-9	HEPES; 2-[4-(2-hydroxyethyl)-1-piperazine]ethanesulfonic acid	H335	0.1-2%
50-70-4	D-Sorbitol; hexahydric alcohol; O-sorbitol; D-glucitol	-	10-20%
7732-18-5	Water	-	75-90%

See section 16 for full text of hazardous statements.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General information: Avoid skin and eye contact with product. Consult physician if symptoms occur.
After inhalation: Supply fresh air; consult physician if symptoms occur.
After skin contact: Remove contaminated clothing. Wash skin with soap and plenty of water.
After eye contact: Remove contact lenses and rinse opened eye for at least 15 minutes with running water.
After swallowing: Rinse mouth with water; consult physician if symptoms occur.

4.2 Most important symptoms and effects, both acute and delayed

Prolonged exposure may cause irritation of respiratory system, skin, and/or eyes. Overexposure to sodium azide causes central nervous system effects, headache, episodes of low blood pressure, and heart palpitations.

4.3 Indication of any immediate medical attention and special treatment needed

If exposed or concerned, seek medical advice and attention. Treat symptomatically.

5. FIREFIGHTING MEASURES

5.1 Suitable extinguishing media

CO2, dry chemical, foam, or water spray.

5.2 Unsuitable extinguishing media

Do not use a heavy water stream as it may spread fire.

5.3 Specialized hazards arising from the substance or mixture:

Will not support combustion unless the water has evaporated.

Hazardous combustion products: Carbon oxides (CO, CO_2) and sulfur compounds

5.4 Specialized protective equipment or precautions:

No special measures required. Exercise caution when fighting any chemical fire.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures

Wear protective clothing. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors, mists, or sprays.

6.2 Environmental precautions

Prevent entry to sewers or public waters.

6.3 Methods and materials for containment and clean up

Contain spills with dikes or absorbents to prevent entry into sewers or streams. Absorb with inert liquid-binding materials (sand, vermiculite, universal binders, sawdust). Containerize materials for proper disposal.

6.4 Reference to other sections

See section 7 for safe handling, section 8 for personal protection equipment, and section 13 for disposal information.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Additional hazards when processed: Contains substances that are combustible dusts. If dried, allowed to accumulate, and dispersed in air, may form combustible dust concentrations that could ignite and cause an explosion. Take appropriate precautions.

Wash hands and other exposed areas with soap and water after handling. Avoid prolonged contact with eyes, skin, and clothing. Avoid breathing vapors, mists, and sprays. Avoid release into the environment. Handle in accordance with good laboratory practices and safety procedures.

7.2 Conditions for safe storage, including any incompatibilities

Store tightly closed and upright in a cool, dry place. Store away from direct sunlight. Recommended storage temperature is 2-8 °C.

Incompatible materials: strong acids, strong bases, strong oxidizers, water-reactive materials

7.3 Specific end use(s)

For research use only.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters: See table.

Sodium azide (26628-22-8)	
PEL	None Listed
REL	None Listed
TLV (ceiling)	0.29 mg/m^3

8.2 Engineering controls

Wear personal protective equipment. Ensure safety shower and eyewash station are near work area. Ensure adequate ventilation.

8.3 Protective equipment and hygiene

Breathing equipment:	Not required unless irritation is experienced.
Skin protection:	Chemical-resistant gloves, protective clothing.
Eye protection:	Safety glasses or goggles.
Hygiene:	Wash hands and exposed skin thoroughly with soap and water after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Appearance:	Colorless
Odor:	Odorless
Odor threshold:	No data available
pH:	8.0
Melting point/range:	No data available
Freezing point/range:	No data available
Boiling point/range:	No data available
Flash point:	No data available
Evaporation rate:	No data available
Flammability (solid, gas):	Not applicable
Upper flammability or explosive limits:	No data available
Lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	No data available
Solubility:	No data available
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity: Hazardous reactions will not occur under normal conditions.

10.2 Chemical stability: Stable under recommended handling and storage conditions (see section 7).

10.3 Possibility of hazardous reactions: None expected under normal use.

10.4 Conditions to avoid: Direct sunlight, extreme temperatures, incompatible materials.

10.5 Incompatible materials: Strong acids, strong bases, strong oxidizers, water-reactive materials.

10.6 Hazardous decomposition products: None known.

11. TOXICOLOGICAL INFORMATION

11.1 Acute toxicity

Not classified.

11.2 Primary irritant effect

On the skin: Prolonged exposure may cause irritation.
On the eye: May cause irritation to eyes.
Sensitization: May cause skin and respiratory sensitization.

11.3 Additional toxicological information

Prolonged exposure may cause irritation of respiratory system, skin, and/or eyes. Overexposure to sodium azide causes central nervous system effects, headache, episodes of low blood pressure, and heart palpitations.

11.4 Carcinogenicity

Not applicable.

Component Toxicity Information	
Sodium azide (26628-22-8)	
LD50 Oral (Rat)	27 mg/kg
LD50 Dermal (Rabbit)	20 mg/kg
Calcium chloride (10035-04-8)	
LD50 Oral (Rat)	2,301 mg/kg
LD50 Dermal (Rabbit)	>5,000 mg/kg
HEPES (7365-45-9)	
LD50 Oral (Rat)	>2,000 mg/kg
D-Sorbitol (50-70-4)	
LD50 Oral (Rat)	15,900 mg/kg

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Aquatic toxicity: Not classified.
Persistence and degradability: Not established.
Bio accumulative potential: Not established.
Mobility in soil: No data available.

12.2 Additional ecological information

General notes: Avoid release into the environment.
Other adverse effects: No further relevant information available.

Component Ecotoxicity Information	
Sodium azide (26628-22-8)	
LC50 (Fish) Oncorhynchus mykiss	0.8 mg/L – 96 h
Calcium chloride (10035-04-8)	
LC50 (Fish) Lepomis macrochirus	10,650 mg/L – 96 h
EC50 (Water flea)	3,005 mg/l – 48 h
HEPES (7365-45-9)	
LC50 (Fish) Danio rerio	>100 mg/L – 96 h

13. DISPOSAL CONSIDERATIONS

Recommendation: Soak up and discard. Dispose of in accordance with local, state, and federal regulations.
Uncleaned packaging: Container may remain hazardous when empty. Continue to observe all precautions.

14. TRANSPORT INFORMATION

Not regulated for transport.

15. REGULATORY INFORMATION

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

SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)

Section 302/304 (40CFR355.30/40CFR355.40): 26628-22-8 sodium azide, TPQ/RQ: 500 lbs/1000 lbs

Section 313 (40CFR372.65): 26628-22-8 sodium azide

TSCA Active Listing: 26628-22-8 sodium azide; 7365-45-9 HEPES; 50-70-4 D-sorbitol; 7732-18-5 water

15.2 State regulations

Sodium azide (26628-22-8)
Massachusetts – Right to Know List
New Jersey – Right to Know Hazardous Substance List
Pennsylvania – RTK (Right to Know) – Environmental Hazard List
Pennsylvania – RTK (Right to Know) List

16. OTHER INFORMATION

The information in this document is based on the present state of knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. IMCS, Inc and its affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

Date of Last Revision: *09/15/2022*

GHS (Globally Harmonized System) full text:

H317 – Cat. 1	May cause an allergic skin reaction; sensitization, skin
H334 – Cat. 1	May cause allergy or asthma symptoms or breathing difficulties if inhaled; sensitization, respiratory
H301 – Cat. 3	Toxic if swallowed; acute toxicity, oral
H310 – Cat. 2	Fatal in contact with skin; acute toxicity, dermal
H318 – Cat. 1	Causes serious eye damage; serious eye damage/eye irritation
H370 – Cat. 1	Causes damage to organs; specific target organ toxicity, single exposure
H372 – Cat. 1	Causes damage to organs through prolonged or repeated exposure; specific target organ toxicity, repeated exposure
H401 – Cat. 2	Toxic to aquatic life; hazardous to the aquatic environment, acute hazard
H411 – Cat. 2	Toxic to aquatic life with long lasting effects; hazardous to the aquatic environment, long-term hazard
H319 – Cat. 2A	Causes serious eye irritation; serious eye damage/eye irritation
H335 – Cat. 3	May cause respiratory irritation; specific target organ toxicity, single exposure; respiratory tract irritation

Abbreviations and Acronyms

CAS: Chemical Abstracts Service (division of the American Chemical Society)

EC: Enzyme Commission

TSCA: Toxic Substance Control Act