

1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

1.1 Identification of the product

Product Name: **HEMOSIL® SYNTHASIL**

Product Number: **0020006800**

1.2 Use of the product:

Kit for in vitro diagnostic use.

1.3 Company identification:

MANUFACTURER:

Instrumentation Laboratory Co.
180 Hartwell Road,
Bedford, MA 01730-2443 (USA)
Tel. +1 800 678 0710
Fax +1 781 863 9928

DISTRIBUTOR EU:

Via Roma, 103
20040 Cavenago Brianza (Italy)

DISTRIBUTOR US/CANADA:

Instrumentation Laboratory Co.
526 Route 303
Orangeburg, New York 10962 (USA)

E-mail address of the competent person: infosds@mail.ilww.it

1.4 Emergency phone:

+44 (0)3700 492 795
+1 215 207 0061 (USA and Canada)

2. COMPOSITION/INFORMATION ON PRODUCT

P/N	Mixture name	Mixture classification According to 67/548/EEC and 1999/45/EEC Directives	Mixture classification According to 1272/2008/EC Regulation	Kit configuration
0020006810	SYNTHASIL APTT REAGENT	Not classified	Not classified	5 x 10 mL
0020006910	CALCIUM CHLORIDE 0.020M	Not classified	Not classified	5 x 10 mL

Disclaimer

This document is intended only as a guide to appropriate precautionary handling of this product by a trained person, or supervised by a person trained in chemical handling. The product shall not be used for purposes different from those indicated in section 1, unless having received suitable written instructions on how to handle the material. Use the product in accordance with the Good Laboratory Practice. This document cannot describe all potential dangers of use or interaction with other chemicals or materials. It is the user's responsibility for the product's safe use, the product's suitability for the intended use and the product's safe disposal. No representation or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to the information set forth herein or to the product to which the information refers. The contained information in this MSDS are in accordance with Annex II of Regulation no.1907/2006 (REACH) and in accordance with ANSI "Standard for Hazardous Industrial Chemicals - Material Safety Data Sheets - Preparation" (ANSI Z400.1-2004) as recommended by US OSHA.

Prepared by: Chemsafe Srl

1. IDENTIFICATION OF THE MIXTURE AND OF THE COMPANY

1.1 Identification of the mixture

Product Name: **SYNTHASIL APTT REAGENT**

Product Number: **0020006810**

1.2 Use of the mixture: For in vitro diagnostic use.

1.3 Company identification:

MANUFACTURER:
Instrumentation Laboratory Co.
180 Hartwell Road,
Bedford, MA 01730-2443 (USA)
Tel. +1 800 678 0710
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1.4 Emergency phone: +44 (0)3700 492 795
+1 215 207 0061 (USA and Canada)

2. HAZARDS IDENTIFICATION

2.1 Mixture classification

Classified: not dangerous

(see also ch. 15)

according to 67/548/EEC and 1999/45/EEC Directives

Classified: not hazardous

according to 1272/2008/EC Regulation

2.2 Potential health and environmental effects

Ingestion: May be harmful if swallowed.
Inhalation exposure: May cause irritation.
Contact with skin: May cause irritation.
Contact with eyes: May cause irritation.
Sensitization: Might cause sensitization by inhalation or skin contact.
Environmental exposure: Might cause adverse effects for the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Composition : liquid containing organic and inorganic components.

3.1 Hazardous components:

Name	EINECS/ ELINCS n°	CAS n°	Conc. % w/w	Classification 67/548/EEC	Classification 1272/2008/EC

Name	EINECS/ ELINCS n°	CAS n°	Conc. % w/w	Classification 67/548/EEC	Classification 1272/2008/EC
Formaldehyde (*)	200-001-8	50-00-0	< 0.005 %	Carc. Cat. 3, R40 T, R23/24/25 C, R34 R43 <u>Specific Conc. Limits</u> T, R23/24/25: c ≥ 25% Xn, R20/21/22: 5 % ≤ c < 25 % C, R34: c ≥ 25 % Xi, R36/37/38: 5 % ≤ c < 25 % R43: c ≥ 0,2 %	Carc. 2, H351 Acute Tox. 3 (*), H331 Acute Tox. 3 (*), H311 Acute Tox. 3 (*), H301 Skin Corr. 1B, H314 Skin Sens. 1H317 <u>Specific Conc. Limits</u> Skin Corr. 1B, H314: c ≥ 25 % Skin Irrit. 2, H315: 5 % ≤ c < 25% Eye Irrit. 2, H319: 5 % ≤ c < 25 % STOT SE 3, H335: c ≥ 5 % Skin Sens. 1, H317: c ≥ 0,2 %
1,2-dibromo-2,4-dicyanobutane	252-681-0	35691-65-7	< 0.015%	Xn, R22 Xi, R38; R41; R43 N, R50	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317, Aquatic Acute 1, H400
<i>For exposure limits see ch. 8, for phrases R and hazard statements text see ch. 16</i>					

4. FIRST AID MEASURES

Ingestion:	If swallowed rinse mouth with plenty of water provided person is conscious. Get medical advice if adverse symptoms appear.
Inhalation exposure:	If inhaled, move person to fresh air. Get medical advice if adverse symptoms appear.
Contact with skin:	Remove contaminated clothes and shoes. Wash affected area with soap or mild detergent and plenty of water. Get medical advice if adverse symptoms appear.
Contact with eyes:	Wash immediately with plenty of water or normal saline. Keep eyelid open with the finger. Get medical advice if adverse symptoms appear.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing means:	Water spray or regular foam, CO ₂ , dry powder.
Mean of extinguishing NOT to be used:	Not known.
Known hazards caused by combustion:	Thermal decomposition or combustion may generate toxic and hazardous fumes (CO _x , NO _x , SO _x , HCl).
Equipment for self-protection (fire fighters):	Self-contained breathing apparatus, flame and chemical resistant clothing, boots and gloves.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Suitable protective clothing, rubber or polythene gloves, rubber shoes, safety glasses.
Environmental precautions:	Do not let the product enter drainage system, surface and ground-water or soil. Contact local authorities in case of environmental release. Do not empty into drains.
Cleaning procedure to recover spilled material:	Soak up with inert absorbent material, and clean with plenty of water. Send to the storage waiting for disposal procedures.

7. HANDLING AND STORAGE

7.1 Handling

Handling procedures: Wear suitable protective clothing, gloves, eye protection. When use do not eat, drink or smoke. Provide sufficient ventilation in all work areas.

Work/Hygienic practices: Wash hands with soap and water after use.

7.2 Storage

Room ventilation: Well ventilated workplace.

Special precautions: Avoid environmental release.
 (see also Section 8)

Recommended temperature: Store at 2 – 8 °C.

Humidity, light and other environmental factors: Avoid light exposure and keep away from heat sources and non compatible materials.

Containers: Keep containers tightly closed and labeled with the name of the product.

Other storage precautions: Keep away from food and drinks.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure limit values

OSHA Permissible Exposure Limit (PEL) for General Industry: LV EU: not available
 0.75 ppm TWA; 2 ppm STEL, related to Formaldehyde ⁽¹⁾

Threshold Limit Value (TLV) (ACGIH): 0.3 ppm, 0.37 mg/m³ MAK: 0.3 ppm, 0.37 mg/m³, related to Formaldehyde ⁽²⁾
 Ceiling, related to Formaldehyde ⁽¹⁾

NIOSH Recommended Exposure Limit (REL): 0.016 ppm TWA,
 0.1 ppm Ceiling (15 Minutes), related to Formaldehyde ⁽¹⁾

NIOSH Immediately Dangerous To Life or Health Concentration (IDLH): 20 ppm, related to Formaldehyde ⁽¹⁾

8.2 Exposure Controls

Respiratory protection: Respiratory protection is not required. Where risk assessment shows air-purifying respirators are appropriate, use masks with approved filter.

Skin protection: Protective clothing, rubber or polythene gloves.

Eye protection: Safety glasses.

Hand protection: Rubber or polythene gloves.

Other protective systems: Personal protective equipment (PPE) useful for reducing individual exposure.

Environmental protection: Avoid any release into the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 General information

Appearance: Liquid
 Odor: Odorless
 Color: Slightly turbid

9.2 Important health, safety and environmental information

	Value	Related to
pH:	7.15 – 7.35	Mixture
Boiling point/range:	not available	
Flash point:	not available	
Vapor pressure:	not available	
Density:	1.028 g/ml	Mixture
Solubility:	not available	
Water Solubility:	miscible	Mixture
Viscosity:	not available	
Vapor density:	not available	
Evaporation rate:	not available	

9.3 Other information

Melting point/range: not available

10. STABILITY AND REACTIVITY

Stability: The product is stable until the expiration date shown on the box and on the labels when stored at 2 – 8 °C.

10.1 Conditions to avoid: Keep out from heat and light.

10.2 Materials to avoid: Oxidizing agents, reducing agents.

10.3 Hazardous decomposition products: Thermal decomposition or combustion may include toxic and hazardous fumes of COx, NOx, SOx, HCl.

11. TOXICOLOGICAL INFORMATION

11.1 Toxicokinetic effects (ADME)

Absorption: Formaldehyde is rapidly absorbed from the respiratory tract and gastrointestinal and poorly absorbed following dermal application. ⁽²⁾

1,2-dibromo-2,4-dicyanobutane is readily absorbed following oral and dermal administration. ⁽⁷⁾

Distribution: Formaldehyde will partition into richly vascularized organs, haematopoietic organs, gastrointestinal mucosa, exocrine pancreas, salivary glands. ⁽²⁾

Metabolism: Formaldehyde is metabolized by the enzyme formaldehyde dehydrogenase to formate and then the carbon atom is oxidized to carbon dioxide or incorporated into purines, thymidine and aminoacids. Both formaldehyde and formate does not accumulate in tissues. ⁽²⁾

Excretion: not available

11.2 Acute toxicity

	Value	m.u.	Effects	Related to
<u>Oral:</u>	LD50 (rat) = 100	mg/Kg		⁽³⁾ Formaldehyde
	LD50 (rat) = 515	mg/Kg		⁽⁷⁾ 1,2-dibromo-2,4-dicyanobutane
<u>Dermal:</u>	LD50 (rat) = 270	mg/Kg		⁽³⁾ Formaldehyde
	LD50 (rabbit) > 5000	mg/Kg		⁽⁷⁾ 1,2-dibromo-2,4-dicyanobutane
<u>Inhalation:</u>	LC50 (rat) = 0.578	mg/l/4h		⁽⁴⁾ Formaldehyde
	LC50 (rat) > 13,000	mg/l/4h		⁽⁷⁾ 1,2-dibromo-2,4-dicyanobutane
<u>Other data:</u>	not available			

11.3 Irritation

Skin: Formaldehyde solutions (0.1–20%) were applied to rabbit skin and produced mild to moderate irritations. ⁽⁴⁾ Solutions of 40% formaldehyde produce caustic injuries. ⁽²⁾

Equivocal results were obtained from skin irritation tests with 1,2-dibromo-2,4-dicyanobutane in animal studies. ⁽⁷⁾

Eye: Formaldehyde may in some individuals be mildly irritating to the eyes in airborne concentrations down to 0.01 ppm. Aqueous solutions of formaldehyde accidentally splashed into the eyes have caused severe injuries. Ocular irritation is observed in animals exposed to formaldehyde vapour at concentrations of 15 ppm. ⁽⁵⁾

In pure form (98%), 1,2-dibromo-2,4-dicyanobutane is a severe eye irritant. Instillation of 1,2-dibromo-2,4-dicyanobutane powder into the rabbit eye resulted in severe irritation, which persisted for at least 21 days post-instillation. ⁽⁷⁾

Inhalation: Upper airway irritation to Formaldehyde vapour occurs at 0.1-25 ppm. Lower airway irritation is reported at 5-30 ppm. ⁽⁵⁾

11.4 Sensitization:

Skin sensitization: Formaldehyde is a relatively strong contact allergen and contact allergy may develop after contact with products, which contain less than 1% formaldehyde. ⁽⁵⁾

Results from three local lymph node assays (LLNA) and from two novel adjuvant methods for assessing skin sensitisation potential strongly suggest that 1,2-dibromo-2,4-dicyanobutane is a sensitising agent⁽⁷⁾

Sensitization by inhalation: not available

11.5 Prolonged exposure toxicity:

Chronic studies with rats given Formaldehyde in drinking water showed adverse effects in the animals receiving the highest dose (about 100 mg/kg of body weight). The effects were low body weight and pathological changes in the stomach.⁽⁵⁾

Repeated dermal application of 1,2-dibromo-2,4-dicyanobutane was associated with moderate to severe erythema and slight to moderate oedema. Non-neoplastic lesions at the application site such as epidermal hyperplasia, hyperkeratosis, parakeratosis, necrosis, and ulcers were observed. Dermal chronic active inflammation and sebaceous gland hyperplasia were also reported.⁽⁷⁾

11.6 CMR effects

Mutagenicity:

Ames test: Positive in some strains
Negative

⁽⁶⁾ Formaldehyde

1,2-dibromo-2,4-dicyanobutane

Mouse lymphoma: not available

Chromosomal aberration: positive

⁽⁸⁾ 1,2-dibromo-2,4-dicyanobutane

Cytogenetic tests with Chinese hamster ovary cells: Positive

⁽⁶⁾ Formaldehyde

Micronucleus test: Formaldehyde increased the number of micronuclei and nuclear anomalies in epithelial cells in rats by oral administration.⁽⁵⁾

⁽⁵⁾ Formaldehyde

Teratogenesis:

No teratogenic effects were seen in mice given Formaldehyde orally, in an aqueous solution containing about 0.2% formaldehyde, on day 6-15 of gestation. The oral doses were 74, 148, 185 mg/kg body weight. No effects on fetus size and no skeletal or visceral abnormalities were observed.⁽⁵⁾

In a study in rats exposed to 1,2-dibromo-2,4-dicyanobutane, a NOAEL for developmental toxicity was determined to be 175 mg/kg bw. Available information suggests that the substance is neither a reproductive nor a developmental toxin at doses that are not associated with maternal toxicity.⁽⁷⁾

Carcinogenesis:

The International Agency for Research on Cancer (IARC) has placed Formaldehyde in group 2A (probably carcinogenic to humans). There is limited evidence for the carcinogenicity to humans and sufficient evidence for carcinogenicity in experimental animals.⁽⁵⁾

Under the conditions of these 2-year dermal studies there was no evidence of carcinogenic activity of 1,2-dibromo-2,4-dicyanobutane in male or female rats administered 2, 6, or 18 mg/kg.⁽⁸⁾

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicology

Acute toxicity with fish:

Value LC50 Zebra fish = 41 m.u. mg/l/96 hours

⁽⁵⁾ Formaldehyde

Acute toxicity with Daphnia Magna:

Value EC50 = 6.16 m.u. mg/l/48 hours

⁽⁹⁾ 1,2-dibromo-2,4-dicyanobutane

Acute toxicity with algae:

Value ErC50 Green algae = 0.15 m.u. mg/l/72 hours

⁽⁹⁾ 1,2-dibromo-2,4-dicyanobutane

12.2 Mobility:

1,2-dibromo-2,4-dicyanobutane is expected to be very mobile and nonpersistent in aquatic and soil environments.⁽¹⁰⁾

12.3 Persistency and degradability:

The biodegradability of formaldehyde has been determined according to BOD5 methods by which a degradation of 97.4% and > 60% was determined.⁽²⁾

1,2-dibromo-2,4-dicyanobutane is expected to degrade rapidly in aquatic environments.⁽¹⁰⁾

12.4 Bioaccumulation potential:

Bioconcentration potential of Formaldehyde is insignificant.

12.5 Evaluation PBT result:

not available

12.6 Other toxic effects:

not available

13. DISPOSAL CONSIDERATION

National laws on disposal must be considered, local and UE requirements for wastes recycling must be respected.
Used waste product, surplus product or spillage products shall be disposed of in accordance with national, state and local laws.

14. TRANSPORT INFORMATION

Not classified for transport in accordance with ADR/RID, IMDG, IATA and DOT regulations.

15. REGULATORY INFORMATION

Regulatory information on labeling according to 67/548/EEC, to 1999/45/EEC Directive and to 1272/2008 Regulation (EC)(European reinforcement of GHS), and according to their following amendments/atp.

	According to 67/548/EEC and 1999/45/EEC Directives	According to 1272/2008/EC Regulation
Classification:	Not classified as dangerous	Not classified as hazardous
Labeling symbols: (signal word)	none	none
Labeling risk phrases: (hazard statements)	none	none
Labeling safety phrases: (precautionary statements)	none	none

Other labeling details: ≈ 6.5% percent of this mixture consist of ingredient(s) of unknown toxicity for human health and aquatic environment.

Safety precautions: Wear suitable protective clothing, gloves and eye/face protection.

Authorization: no

Restriction: no

16. OTHER INFORMATION

Phrases R:
R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.
R40: Limited evidence of a carcinogenic effect.
R23/24/25: Toxic by inhalation, in contact with skin and if swallowed.
R34: Causes burns.
R43: May cause sensitisation by skin contact.
R36/37/38: Irritating to eyes, respiratory system and skin.
R22: Harmful if swallowed.
R38: Irritating to skin.
R41: Risk of serious damage to eyes.
R50: Very toxic to aquatic organisms.

Hazard Statements:
H351: Suspected of causing cancer
H311: Toxic in contact with skin.
H301: Toxic if swallowed.
H314: Causes severe skin burns and eye damage.
H317: May cause an allergic skin reaction.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H302: Harmful if swallowed.
H318: Causes serious eye damage.
H400: Very toxic to aquatic life.

The contained information in this MSDS are in accordance with Annex II of Regulation no.1907/2006 (REACH) and in accordance with ANSI "Standard for Hazardous Industrial Chemicals - Material Safety Data Sheets – Preparation" (ANSI Z400.1-2004) as recommended by US OSHA.

Bibliographic references:

- (1) United States Department of Labor, Occupational safety & Health Administration, Chemical Sampling Information, Formaldehyde
- (2) <http://www.salute.gov.it/sicurezzaChimica/paginaInternaMenuSicurezzaChimica>, MSDS for Formaldehyde
- (3) ChemIdplus Lite, Formaldehyde, Full record
- (4) IUCLID dataset for Formaldehyde, date: 18 feb. 2000
- (5) Danish Ministry of Environment, Environmental and Health Assessment of Substances in Household Detergents and Cosmetic Detergent Products, Formaldehyde
- (6) Chemical Carcinogenesis Research Information System (CCRIS), a database of the National Library of Medicine's TOXNET system, Records containing the term Formaldehyde
- (7) Australian Government, department of Health and Ageing, NICNAS Existing Chemicals Information Sheet, Methylidibromo Glutaronitrile, June 2009
- (8) NTP Database, Study Abstract for 1,2-Dibromo-2,4-dicyanobutane
- (9) LANXESS, Material Safety Data Sheet for Tektamer 38LV
- (10) EPA R.E.D. Facts, DIBROMODICYANOBUTANE
- (*) Classification in Annex I of Dir 67/548/EEC and in Annex VI of the 1272/2008 Regulation (EC).

1. IDENTIFICATION OF THE MIXTURE AND OF THE COMPANY

1.1 Identification of the mixture

Product Name: **CALCIUM CHLORIDE 0.020M**

Product Number: **0020006910**

1.2 Use of the mixture: For in vitro diagnostic use.

1.3 Company identification:

MANUFACTURER:
 Instrumentation Laboratory Co.
 180 Hartwell Road,
 Bedford, MA 01730-2443 (USA)
 Tel. +1 800 678 0710
 Fax +1 781 863 9928

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1.4 Emergency phone: +44 (0)3700 492 795
 +1 215 207 0061 (USA and Canada)

2. HAZARDS IDENTIFICATION

2.1 Mixture classification

Classified: not dangerous

(see also ch. 15)

according to 67/548/EEC and 1999/45/EEC Directives

Classified: not hazardous

according to 1272/2008/EC Regulation

2.2 Potential health and environmental effects

Ingestion: May be harmful if swallowed.
 Inhalation exposure: May cause irritation.
 Contact with skin: May cause irritation.
 Contact with eyes: May cause irritation.
 Sensitization: Might cause sensitization by inhalation or skin contact.
 Environmental exposure: Might cause adverse effects for the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Composition: liquid containing inorganic components.

3.1 Hazardous components:

Name	EINECS/ ELINCS n°	CAS n°	Conc. % w/w	Classification 67/548/EEC	Classification 1272/2008/EC
Sodium Azide (*)	247-852-1	26628-22-8	< 0.03 %	T+; R28, R32 N; R50-53	Acute Tox. 2, H300 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Calcium chloride dihydrate (*)	233-140-8 (as Calcium chloride anhydrous)	10035-04-8 (10043-52-4 as Calcium chloride anhydr.)	< 0.3 %	Xi, R36	Eye irrit. 2, H319

For exposure limits see ch. 8, for phrases R and hazard statements text see ch. 16

4. FIRST AID MEASURES

Ingestion: If swallowed rinse mouth with plenty of water provided person is conscious. Get medical advice if adverse symptoms appear.
 Inhalation exposure: If inhaled, move person to fresh air. Get medical advice if adverse symptoms appear.

Contact with skin: Remove contaminated clothes and shoes. Wash affected area with soap or mild detergent and plenty of water. Get medical advice if adverse symptoms appear.

Contact with eyes: Wash immediately with plenty of water or normal saline. Keep eyelid open with the finger. Get medical advice if adverse symptoms appear.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing means: Water spray or regular foam, CO₂, dry powder.

Mean of extinguishing NOT to be used: Not known.

Known hazards caused by combustion: Thermal decomposition or combustion may generate toxic and hazardous fumes (Na₂O, HCl).

Equipment for self-protection (fire fighters): Self-contained breathing apparatus, flame and chemical resistant clothing, boots and gloves.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Suitable protective clothing, rubber or polythene gloves, rubber shoes, safety glasses.

Environmental precautions: Do not let the product enter drainage system, surface and ground-water or soil. Contact local authorities in case of environmental release. Do not empty into drains.

Cleaning procedure to recover spilled material: Soak up with inert absorbent material, and clean with plenty of water. Send to the storage waiting for disposal procedures.

7. HANDLING AND STORAGE

7.1 Handling

Handling procedures: Wear suitable protective clothing, gloves, eye protection. When use do not eat, drink or smoke. Provide sufficient ventilation in all work areas.

Work/Hygienic practices: Wash hands with soap and water after use.

7.2 Storage

Room ventilation: Well ventilated workplace.

Special precautions (see also Section 8): Avoid environmental release.

Recommended temperature: Store at 2 – 8 °C.

Humidity, light and other environmental factors: Avoid light exposure and keep away from heat sources and non compatible materials.

Containers: Keep containers tightly closed and labeled with the name of the product.

Other storage precautions: Keep away from food and drinks. Keep away from contamination with heavy metals. Sodium azide has been reported to form lead or copper azide in laboratory plumbing which may explode on percussion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure limit values

TLV/TWA: 0.1 mg/m ³ for Sodium azide ⁽¹⁾	EU OEL: 0.1 mg/m ³ as TWA, 0.3 mg/m ³ as STEL (skin) for Sodium azide ⁽¹⁾
TLV /STEL: 0.3 mg/m ³ for Sodium azide ⁽¹⁾	US OSHA PEL FINAL-CL: 0.3 mg/m ³ (as NaN ₃) (skin) for Sodium azide
TLV-CEILING (ACGIH): 0.29 mg/m ³ for Sodium azide ⁽¹⁾	MAK: 0.2 mg/m ³ , inhalable fraction for Sodium azide ⁽²⁾
	OES (UK): 10 mg/m ³ related to Calcium chloride ⁽⁶⁾

8.2 Exposure Controls

Respiratory protection: Respiratory protection is not required. Where risk assessment shows air-purifying respirators are appropriate, use masks with approved filter.

Skin protection: Protective clothing, rubber or polythene gloves.

Eye protection: Safety glasses.

Hand protection:	Rubber or polythene gloves.
Other protective systems:	Personal protective equipment (PPE) useful for reducing individual exposure.
Environmental protection:	Avoid any release into the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 General information

Appearance:	Liquid
Odor:	Odorless
Color:	Clear

9.2 Important health, safety and environmental information

	Value	Related to
pH:	not available	
Boiling point/range:	not available	
Flash point:	not available	
Vapor pressure:	not available	
Density:	1.000 g/ml	Mixture
Solubility:	not available	
Water Solubility:	miscible	Mixture
Viscosity:	not available	
Vapor density:	not available	
Evaporation rate:	not available	

9.3 Other information

Melting point/range:	not available
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10. STABILITY AND REACTIVITY

Stability: The product is stable until the expiration date shown on the box and on the labels when stored at 2 – 8 °C.

10.1 Conditions to avoid:	Keep away from heat and light.
10.2 Materials to avoid:	Oxidizing agents, reducing agents, strong acid agents, strong basic agents. Keep away from acids (sodium azide reacts strongly) and away from contamination with heavy metals. Sodium azide has been reported to form lead or copper azide in laboratory plumbing which may explode on percussions. Sodium azide reacts vigorously with heated water.
10.3 Hazardous decomposition products:	Thermal decomposition or combustion may include toxic and hazardous fumes of Na ₂ O, HCl.

11. TOXICOLOGICAL INFORMATION

11.1 Toxicokinetic effects (ADME)

Absorption:	Sodium azide is rapidly absorbed from the gastrointestinal tract and from injection sites. ⁽³⁾
Distribution:	not available
Metabolism:	not available
Excretion:	not available

11.2 Acute toxicity

	Value	m.u.	Effects	Related to
<u>Oral:</u>	LD50 (rat) = 27	mg/Kg		⁽⁴⁾ Sodium azide
	LD50 (rat) = 1,000 - 4,179	mg/Kg		⁽⁶⁾ Calcium chloride
<u>Dermal:</u>	LD50 (rat) = 50	mg/Kg		⁽⁴⁾ Sodium azide
	LD50 (rat) = 2,630	mg/Kg		⁽⁶⁾ Calcium chloride
<u>Inhalation:</u>	LC50 (rat) = 37	mg/m ³		⁽⁴⁾ Sodium azide

Other data: not available

11.3 Irritation

Skin: Calcium chloride is not irritating for the skin. ⁽⁶⁾
 Eye: Calcium chloride is irritating for the eyes. ⁽⁶⁾
 Inhalation: not available

11.4 Sensitization:

Skin sensitization: not available
 Sensitization by inhalation: not available

11.5 Prolonged exposure toxicity:

not available

11.6 CMR effects

Mutagenicity:	Ames test:	Sodium azide was mutagenic in <i>Salmonella typhimurium</i> strains TA100 and TA1535 with or without exogenous metabolic activation (S9); it was not mutagenic in strain TA1537 or TA98.	(5) Sodium azide
	Mouse lymphoma:	not available	
	Chromosomal aberration:	Negative	(5) Sodium azide
	Cytogenetic tests with Chinese hamster ovary cells:	Sodium azide induced sister chromatid exchanges, but not chromosomal aberrations.	(5) Sodium azide
	Micronucleus test:	not available	
Teratogenesis:	In a teratogenic study employing albino rats treated orally with technical Sodium azide at dose levels of 0.5, 1.5, or 5.0 mg/kg daily during gestation days 6 through 15, no teratogenic effects due to Sodium azide were found. Sterility has been produced in male mice given sodium azide. ⁽³⁾		
Carcinogenesis:	Carcinogenicity studies were conducted by administering sodium azide (greater than 99% pure) in distilled water by gavage to groups of male and female rats once daily, 5 days per week for 14 days, 13 weeks, or 2 years. Under the conditions of these 2-year gavage studies, there was no evidence of carcinogenic activity of sodium azide in male or female rats administered 5 or 10 mg/kg. Sodium azide induced necrosis in the cerebrum and the thalamus of the brain in both male and female rats. ⁽⁵⁾		

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicology	Value	m.u.	Related to
Acute toxicity with fish:	LC50 bluegill fish = 0.7	mg/l/96 hours	(3) Sodium azide
	LC50 Gambusia affinis = 10,000	mg/l/96 hours	(6) Calcium chloride
Acute toxicity with Daphnia Magna:	EC50 daphnia pulex = 4.2	mg/l/96 hours	(3) Sodium azide
	EC50 Daphnia magna = 144	mg/l/48 hours	(6) Calcium chloride
Acute toxicity with algae:	ErC50 = not available	mg/l/72 hours	
12.2 Mobility:	The dissipation of azides in soil is not by microbial action but is strictly a chemical process accelerated by increasing acidity and elevated temperatures. ⁽³⁾		
12.3 Persistency and degradability:	not available		
12.4 Bioaccumulation potential:	not available		
12.5 Evaluation PBT result:	not available		
12.6 Other toxic effects:	not available		

13. DISPOSAL CONSIDERATION

National laws on disposal must be considered, local and UE requirements for wastes recycling must be respected.
Used waste product, surplus product or spillage products shall be disposed of in accordance with national, state and local laws.

14. TRANSPORT INFORMATION

Not classified as dangerous for transport in accordance with ADR/RID, IMDG, IATA and DOT regulations.

15. REGULATORY INFORMATION

Regulatory information on labeling according to 67/548/EEC, to 1999/45/EEC Directive and to 1272/2008 Regulation (EC)(European reinforcement of GHS), and according to their following amendments/atp.

	According to 67/548/EEC and 1999/45/EEC Directives	According to 1272/2008/EC Regulation
Classification:	Not classified as dangerous	Not classified as hazardous
Labeling symbols: (signal word)	none	none
Labeling risk phrases: (hazard statements)	none	none
Labeling safety phrases: (precautionary statements)	none	none

Other labeling details: no

Safety precautions: Wear suitable protective clothing, gloves and eye/face protection.

Authorization: no

Restriction: no

16. OTHER INFORMATION

Phrases R:
R28: Very toxic if swallowed.
R32: Contact with acids liberates very toxic gas.
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R36: Irritating to eyes.

Hazard Statements:
H300: Fatal if swallowed.
H319: Causes serious eye irritation.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.

The contained information in this MSDS are in accordance with Annex II of Regulation no.1907/2006 (REACH) and in accordance with ANSI "Standard for Hazardous Industrial Chemicals - Material Safety Data Sheets – Preparation" (ANSI Z400.1-2004) as recommended by US OSHA.

Bibliographic references:

- (1) International Chemical Safety Cards, Sodium azide
- (2) Haz-Map Occupational exposure to hazardous Agents, Sodium azide
- (3) HSDB Hazardous Substances Databank, Sodium azide
- (4) ChemIDplus Lite, Sodium azide, full record
- (5) National Toxicology Program database Search Application, Toxicology and Carcinogenesis Studies of Sodium azide (CAS: 26628-22-8) in F344 Rats (Gavage Studies)
- (6) IUCLID data set for Calcium Chloride, 18-feb-2000
- (*) Classification in Annex I of Dir 67/548/EEC and in Annex VI of the 1272/2008/EC Regulation