Safety data sheet

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name **HD BLUE CEMENT**

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use **Adhesive for professional use**

Uses advised against **Different use from those indicated in the top**

1.3. Details of the supplier of the safety data sheet

Name **ITALMATIC SRL**

Full address **Via dell'Artigianato 8/A**

District and Country **20060 Cassina de' Pecchi (Milan)**
Italy

tel. +39 02 95300545

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responsible for the Safety Data Sheet **sds@italmatic.net**

ITALMATIC SRL

For urgent inquiries refer to Company Emergency telephone number: **+39 02 95300545** (Technical support - Monday to Friday: (9:00 a.m. – 06:00 p.m.))

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of EC Regulation 1907/2006 and subsequent amendments. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Flammable liquid, category 2	H225	Highly flammable liquid and vapour.
Aspiration hazard, category 1	H304	May be fatal if swallowed and enters airways.
Skin irritation, category 2	H315	Causes skin irritation.
Respiratory sensitization, category 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitization, category 1	H317	May cause an allergic skin reaction.
Specific target organ toxicity - single exposure, category 3	H336	May cause drowsiness or dizziness.
Hazardous to the aquatic environment, acute toxicity, category 1	H400	Very toxic to aquatic life.
Hazardous to the aquatic environment, chronic toxicity, category 1	H410	Very toxic to aquatic life with long lasting effects.

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:

Signal words: Danger

Hazard statements:

H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H336	May cause drowsiness or dizziness.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing fume / gas / mist / vapours.
P280	Wear protective gloves / eye protection / face protection.
P301+P310	IF SWALLOWED: immediately call a POISON CENTER / doctor.
P331	Do NOT induce vomiting.
P342+P311	If experiencing respiratory symptoms: call a POISON CENTER / doctor.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Contains: Heptane
Rubber, natural
Zinc bis(dibutyldithiocarbamate)
Zinc bis(diethyldithiocarbamate)

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

SECTION 3. Composition/information on ingredients

3.1. Substances

Information not relevant

3.2. Mixtures

Contains:

Identification	**x = Conc. %**	**Classification 1272/2008 (CLP)**
Heptane		
CAS 142-82-5	82 ≤ x < 86	Flam. Liq. 2 H225, Asp. Tox. 1 H304, Skin Irrit. 2 H315, STOT SE 3 H336, Aquatic Acute 1 H400 M=1, Aquatic Chronic 1 H410 M=1, Note C

EC 205-563-8

INDEX 601-008-00-2

Reg. no. -

Rubber, natural

CAS 9006-04-6 — 9 ≤ x < 10,5 — Resp. Sens. 1 H334, Skin Sens. 1 H317

EC 232-689-0

INDEX

Reg. no. -

Zinc bis(dibutyldithiocarbamate)

CAS 136-23-2 — 1,5 ≤ x < 2 — STOT RE 2 H373, Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335, Skin Sens. 1 H317, Aquatic Acute 1 H400 M=1, Aquatic Chronic 1 H410 M=1

EC 205-232-8

INDEX 006-081-00-9

Reg. no. -

Zinc bis(diethyldithiocarbamate)

CAS 14324-55-1 — 1,5 ≤ x < 2 — Acute Tox. 4 H302, Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335, Skin Sens. 1 H317, Aquatic Acute 1 H400 M=1, Aquatic Chronic 1 H410 M=1

EC 238-270-9

INDEX 006-082-00-4

Reg. no. -

The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention immediately. Wash contaminated clothing before using it again.
INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.
INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.
PROTECTIVE MEASURES FOR THE FIRST RESCUE WORKERS: for PPE (personal protection equipment) required for first aid refer to section 8.2 of this safety data sheet

4.2. Most important symptoms and effects, both acute and delayed

Specific information on symptoms and effects caused by the product are unknown.

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

Information not available

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
Extinguishing substances are: carbon dioxide, foam, chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.
UNSUITABLE EXTINGUISHING EQUIPMENT
Do not use jets of water. Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Excess pressure may form in containers exposed to fire at a risk of explosion. Do not breathe combustion products.

Heptane
The vapors are heavier than air and propagate to the floor level. The fire can propagate in a large area. The product floats on the water and can re-energize on the surface.

5.3. Advice for firefighters

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Evacuate unaccompanied personnel. Avoid dispersing the product in the environment. Follow the appropriate internal procedures for unauthorized personnel to intervene directly in the event of accidental release.

For emergency responders

Wear suitable protective equipment (including the individual protective equipment listed in Section 8 of the Safety Data Sheet) to prevent skin, eye and personal contamination. Follow the appropriate internal procedures for personnel authorized to intervene directly in the event of accidental release.
Keep away unprotected persons. Eliminate any source of ignition (cigarettes, flames, sparks, etc.) or heat from the area where the leak occurred.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. If the product is flammable, use explosion-proof equipment. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.
Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Vapours may catch fire and an explosion may occur; vapour accumulation is therefore to be avoided by leaving windows and doors open and ensuring good cross ventilation. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. When performing transfer operations involving large containers, connect to an earthing system and wear antistatic footwear. Vigorous stirring and flow through the tubes and equipment may cause the formation and accumulation of electrostatic charges. In order to avoid the risk of fires and explosions, never use compressed air when handling. Open containers with caution as they may be pressurised. Do not eat, drink or smoke during use. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Store in a well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

No use other than specified in Section 1.2 of this safety data sheet.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

CHE	Suisse / Schweiz	Valeurs limites d`exposition aux postes de travail 2014. / Grenzwerte am Arbeitsplatz
DEU	Deutschland	MAK-und BAT-Werte-Liste 2012
DNK	Danmark	Graensevaerdier per stoffer og materialer
ESP	España	INSHT - Límites de exposición profesional para agentes químicos en España 2015
FIN	Suomi	HTP-arvot 2012. Haitallisiksi tunnetut pitoisuudet - Sosiaali- ja terveysministeriön julkaisuja 2012:5
FRA	France	JORF n°0109 du 10 mai 2012 page 8773 texte n° 102
GBR	United Kingdom	EH40/2005 Workplace exposure limits
HUN	Magyarország	50/2011. (XII. 22.) NGM rendelet a munkahelyek kémiai biztonságáról
IRL	Éire	Code of Practice Chemical Agent Regulations 2011
ITA	Italia	Decreto Legislativo 9 Aprile 2008, n.81
LVA	Latvija	Ķīmisko vielu aroda ekspozīcijas robežvērtības (AER) darba vides gaisā 2012
NLD	Nederland	Databank of the social and Economic Concil of Netherlands (SER) Values, AF 2011:18
SWE	Sverige	Occupational Exposure Limit Values, AF 2011:18
TUR	Türkiye	2000/39/EC sayılı Direktifin ekidir
EU	OEL EU	Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2016

Heptane

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
MAK	CHE	1600	400	1600	400
AGW	DEU	2100	500	2100	500
TLV	DNK	820	200	1640	400
HTP	FIN	1200	300	2100	500

VLEP	FRA	1668	400	2085	500	
WEL	GBR		500			
AK	HUN	2000		8000		
OEL	IRL	2085	500			
VLEP	ITA	2085	500			
RV	LVA	350	85	2085	500	
MAC	NLD	1200		1600		
MAK	SWE	800	200	1200	300	
ESD	TUR	2085	500			
OEL	EU	2085	500			
TLV-ACGIH			400		500	

Rubber, natural

Threshold Limit Value						
Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
VLA	ESP	0,001				SKIN
TLV-ACGIH		0,0001				SKIN

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.
When choosing personal protective equipment, ask your chemical substance supplier for advice.
Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

HAND PROTECTION
Protect hands with category III work gloves (see standard EN 374).
The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.
The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.
The following materials are suitable for protective gloves (Permeation time >= 8 hours):
Nitrile rubber/Nitrile latex - NBR (0,35 mm)
Fluoro carbon rubber - FKM (0,4 mm)
Protective gloves of the following materials should not be worn longer than 1 hour continually (Permeation time >= 1 hour):
Polychloroprene - CR (0,5 mm)
Following materials are unsuitable for protective gloves because of degradation, severe swelling or low permeation time:
Natural rubber/Natural latex - NR
Butyl rubber - Butyl
Polyvinyl chloride - PVC

SKIN PROTECTION
Wear category II professional long-sleeved overalls and safety footwear (see Directive 89/686/EEC and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

Consider the appropriateness of providing antistatic clothing in the case of working environments in which there is a risk of explosion.

EYE PROTECTION

Wear airtight protective goggles (see standard EN 166).

RESPIRATORY PROTECTION
Use a mask with a type A filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.
If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

If this product contains ingredients with exposure limits, monitoring of staff, the atmosphere in the work and biological environment may be required to assess the effectiveness of ventilation or other control measures and/or the need to use respiratory equipment. Refer to monitoring standards, such as the following: European Norm EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy), European Norm EN 14042 (Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.) European Norm EN 482 (Workplace exposure - General requirements for the performance of procedures for the measurement of chemical agents).
It is also necessary to refer to national guidance documents on the methods for the identification of hazardous substances.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	liquid
Colour	blue
Odour	hydrocarbons
Odour threshold	Not available
pH	Not available
Melting point / freezing point	Not available
Initial boiling point	93,33 °C
Boiling range	Not available
Flash point	-9,44 °C
Evaporation Rate	4.2 (butyl acetate = 1)
Flammability of solids and gases	Not applicable on the basis of physical state.
Lower inflammability limit	1 % (V/V)
Upper inflammability limit	6,7 % (V/V)
Lower explosive limit	1 % (V/V)
Upper explosive limit	6,7 % (V/V)
Vapour pressure	6 kPa a 25°C
Vapour density	3.5 [Air = 1]
Relative density	0,72
Solubility	insoluble in water
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	203,8 °C
Decomposition temperature	Not available
Kinematic viscosity	Not determined for mixture due to the volatile nature of liquid. 0,641 mm²/s at 20°C (EN ISO 3104, reported value of heptane)
Explosive properties	Not available
Oxidising properties	Not available

9.2. Other information

Information not available

SECTION 10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

The vapours may also form explosive mixtures with the air.

Zinc bis(dibutyldithiocarbamate)
Dust may form explosive mixture in air.

10.4. Conditions to avoid

Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition.

Zinc bis(dibutyldithiocarbamate)
Heat, open flames, sparks and sources of ignition.

10.5. Incompatible materials

Keep away from: strong oxidizing agents, phosphorus and chlorine, acids

10.6. Hazardous decomposition products

In the event of thermal decomposition or fire, gases and vapours that are potentially dangerous to health may be released.

Zinc bis(diethyldithiocarbamate)
Hazardous decomposition / combustion products: emits toxic fumes under fire conditions: hydrogen cyanide (HCN), sulphur dioxide (SO2), nitrous gases (NOx).

SECTION 11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects

Metabolism, toxicokinetics, mechanism of action and other information

Zinc bis(dibutyldithiocarbamate)
Method: equivalent or similar to OECD Guideline 417 (Toxicokinetics), in GLP, read across
Reliability (Klimisch score): 1
Type: rat (Sprague-Dawley Male/Female)
Exposure: oral
Results: Absorption was relatively slow. Concentration of the substance were found in organs of metabolism and excretion (liver, lung, kidney), vascularised tissues (spleen, thyroid, adrenals), fat, blood and plasma.

Heptane
Bibliographical references: Inhalation kinetics of C6 to C10 aliphatic, aromatic and naphthenic hydrocarbons in rat after repeated exposures (Pharmacology & Toxicology 71: 144-149 (1992))

Reliability (Klimisch score): 2
Type: rat (Sprague-Dawley Male)
Exposure: inhalation (vapour)
Results: Normal-Heptane was found in moderate concentrations in the kidneys and only in marginal concentrations in blood, brain and liver.
In perirenal fat, concentrations were the highest

Bibliographical references: In vitro dermal absorption rate testing of certain chemicals of interest to the occupational safety and health administration: Summary and evaluation of USEPA´s mandated testing. (Regulatory Toxicology and Pharmacology 51: 181-194 (2008))
Reliability (Klimisch score): 2
Type: human skin (in vitro)
Results: Normal-Heptane was able to penetrate the skin. During prolonged exposure, the penetration of the skin was aggravated, since the exposure to Normal-Heptane simultaneously reduced skin barrier function.

Zinc bis(diethyldithiocarbamate)
Method: equivalent or similar to OECD Guideline 417 (Toxicokinetics)
Reliability (Klimisch score): 1
Type: rat (Sprague-Dawley Male/Female)
Exposure: orale
Results: The principal route of metabolism was hydrolysis to form and exhale CS2, COS and CO2 (ca 51%). The remaining dose was excreted in urine and faeces, with excretion essentially complete within 24 h. Compounds found in urine included 2-dimethylamine-thiazolidine carboxylic acid (M1) and the S-glucuronide

ACUTE TOXICITY
LC50 (Inhalation) of the mixture: Not classified (no significant component)
LD50 (Oral) of the mixture:>2000 mg/kg
LD50 (Dermal) of the mixture: Not classified (no significant component)

Zinc bis(dibutyldithiocarbamate)
Method: equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity), in GLP
Reliability (Klimisch score): 1
Type: rat (Sprague-Dawley Male/Female)
Exposure: oral
Results LD50: >5000 mg/kg

Method: equivalent or similar to OECD 402 (Acute Dermal Toxicity)
Reliability (Klimisch score): 1
Type: rabbit (New Zeland White)
Exposure: dermal
Results LD50: >2000 mg/kg

Heptane
Method: equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity), in GLP, read across
Reliability (Klimisch score): 2
Type: rat (Sprague-Dawley Male/Female)
Exposure: oral
Results LD50: >5000 mg/kg

Method: equivalent or similar to OECD Guideline 403 (Acute Inhalation Toxicity)
Reliability (Klimisch score): 2
Type: rat (Sprague-Dawley Male/Female)
Exposure: inhalation (vapour)
Results LC50: >29.29 mg/L/4h

Method: equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity), in GLP, read across
Reliability (Klimisch score): 2
Type: rabbit (New Zeland White)
Exposure: dermal
Results LD50: >2000mg/kg

Zinc bis(diethyldithiocarbamate)
Method: study report (standard acute toxicity)
Reliability (Klimisch score): 2
Type: rat (Sprague-Dawley Male/Female)
Exposure: oral
Results LD50: 1960 mg/kg

Method: study report (standard acute toxicity)
Reliability (Klimisch score): 2
Type: rabbit (albino)
Exposure: dermal
Results LD50: >2000 mg/kg

SKIN CORROSION / IRRITATION
Causes skin irritation
Zinc bis(dibutyldithiocarbamate)
Method: Draize, J.H., Woodard, G., and Calvery, H.O., 1944, in GLP
Reliability (Klimisch score): 2
Type: rabbit (New Zeland White)
Results: irritating for the skin

Heptane
Method: equivalent or similar to OECD Guideline 404 (Acute Dermal Irritation / Corrosion), in GLP, read across
Reliability (Klimisch score): 2
Type: rabbit (New Zeland White)
Results: irritating for the skin

Zinc bis(diethyldithiocarbamate)
Based on the evidence of available data, determined by the judgement of experts, the substance is classified as skin irritating (Annex VI, reg. CLP)

SERIOUS EYE DAMAGE / IRRITATION
Does not meet the classification criteria for this hazard class

Zinc bis(dibutyldithiocarbamate)
Method: Draize, J.H., Woodard, G., and Calvery, H.O., 1944, in GLP
Reliability (Klimisch score): 2
Type: rabbit (New Zeland White)
Results: eye irritating

Heptane
Method: equivalent or similar to OECD Guideline 405 (Acute Eye Irritation / Corrosion), in GLP, read across
Reliability (Klimisch score): 2
Type: rabbit (New Zeland White)
Results: not irritating

Zinc bis(diethyldithiocarbamate)
Based on the evidence of available data, determined by the judgement of experts, the substance is classified as eye irritating (Annex VI, reg. CLP)

RESPIRATORY OR SKIN SENSITISATION
Sensitising for the skin. Sensitising for the respiratory system

Respiratory sensitization
Rubber, natural
Delayed hypersensitivity to rubber chemicals is well known, but there has been an increasing number of reports of immediate-type hypersensitivity due to latex causing contact, bronchial asthma, and anaphylactic shock in adults ((Goeters C et al; Anaesthesist 40 (5): 302-5 (1991)).

Skin sensitization
Zinc bis(dibutyldithiocarbamate)
Based on the evidence of available data, determined by the judgement of experts, the substance is classified as sensitising for skin (Annex VI, reg. CLP)

Skin sensitization
Heptane
Method: equivalent or similar to OECD Guideline 406 (Skin Sensitisation), read across
Reliability (Klimisch score): 2
Type: guinea pig (p-strain Male/Female)
Results: not sensitising

Skin sensitization
Zinc bis(diethyldithiocarbamate)
Based on the evidence of available data, determined by the judgement of experts, the substance is classified as sensitising for skin

Skin sensitization
Rubber, natural
Chemical and dermatotoxicological investigations of the natural and processed resin of the Mexican rubber plant, guayule (Parthenium argentatum), has established the presence of a sesquiterpene cinnamic acid ester (guayulin A) that is a potent elicitor of allergic contact dermatitis in experimental animals. The guayule contact allergen is comparable to the poison ivy skin allergens as an elicitor of dermatitis in sensitized guinea pigs. (Rodriguez E et al; Science 211 (4489): 1444-5 (1981)).

GERM CELL MUTAGENICITY
Does not meet the classification criteria for this hazard class

Zinc bis(dibutyldithiocarbamate)
Method: OECD Guideline 473 (In Vitro Mammalian Chromosome Aberration Test)
Reliability (Klimisch score): 1
Type: mouse (CD-1 Male/Female)
Exposure: orale
Results: negative

Heptane
Method: OECD Guideline 476 (In Vitro Mammalian Cell Gene Mutation Test)
Reliability (Klimisch score): 2
Type: rat (liver cells)
Results: negative

Zinc bis(diethyldithiocarbamate)
Method: OECD Guideline 475 (Mammalian Bone Marrow Chromosome Aberration Test)
Reliability (Klimisch score): 2
Type: mouse (CD-1 Male/Female)
Exposure: oral
Results: negative

CARCINOGENICITY
Does not meet the classification criteria for this hazard class

Zinc bis(diethyldithiocarbamate)
Bibliographical references: Toxicologic studies on zinc and disodium ethylene bisdithiocarbamates (J. Pharmacol. Exp. Ther. 109, 159-166 (1953))
Reliability (Klimisch score): 2
Type: rat (albino Male/Female)
Exposure: oral
Results: negative

REPRODUCTIVE TOXICITY
Does not meet the classification criteria for this hazard class

Adverse effects on sexual function and fertility
Zinc bis(dibutyldithiocarbamate)
Method: equivalent or similar to OECD Guideline 416 (Two-Generation Reproduction Toxicity Study), in GLP, read across
Reliability (Klimisch score): 1
Type: rat (Sprague-Dawley Male/Female)
Exposure: oral
Results: No adverse effect observed on reproductive toxicity. NOAEL first generation 201 ppm, second generation 540 ppm.

Adverse effects on sexual function and fertility
Heptane
Method: equivalent or similar to OECD Guideline 416 (Two-Generation Reproduction Toxicity Study), in GLP
Reliability (Klimisch score): 1
Type: rat (Sprague-Dawley Male/Female)
Exposure: inhalation (vapour)
Results: Based on the evidence of available data, determined by the judgement of experts, the substance is not classified for the hazard class CLP of toxicity to reproduction and fertility

Adverse effects on sexual function and fertility
Zinc bis(diethyldithiocarbamate)

Method: equivalent or similar to OECD Guideline 416 (Two-Generation Reproduction Toxicity Study), in GLP
Reliability (Klimisch score): 2
Type: rat (Sprague-Dawley Male/Female)
Exposure: oral
Results: Based on the evidence of available data, determined by the judgement of experts, the substance is not classified for the hazard class CLP of toxicity to reproduction and fertility

Adverse effects on development of the offspring
Zinc bis(dibutyldithiocarbamate)
Bibliographical references: Zinc diethyldithiocarbamate. Effects of Zinc diethyldithiocarbamate on the Prenatal and Postnatal Developments of Rats. (Eisei Shikensho Hokoku 102, 55-61 (1984)), read across
Reliability (Klimisch score): 2
Type: rat (Wistar)
Exposure: oral
Results: Based on the evidence of available data, determined by the judgement of experts, the substance is not classified for the hazard class CLP of Developmental toxicity / teratogenicity

Adverse effects on development of the offspring
Heptane
Method: OECD Guideline 414 (Prenatal Developmental Toxicity Study), in GLP, read across
Reliability (Klimisch score): 1
Type: rabbit (New Zeland White)
Exposure: inhalation (vapour)
Results: Based on the evidence of available data, determined by the judgement of experts, the substance is not classified for the hazard class CLP of Developmental toxicity / teratogenicity

Adverse effects on development of the offspring
Zinc bis(diethyldithiocarbamate)
Bibliographical references: Zinc diethyldithiocarbamate. Effects of Zinc diethyldithiocarbamate on the Prenatal and Postnatal Developments of Rats. (Eisei Shikensho Hokoku 102, 55-61 (1984))
Reliability (Klimisch score): 2
Type: rat (Wistar)
Exposure: orale
Results: Based on the evidence of available data, determined by the judgement of experts, the substance is not classified for the hazard class CLP of Developmental toxicity / teratogenicity

STOT - SINGLE EXPOSURE
May cause drowsiness or dizziness

Zinc bis(dibutyldithiocarbamate)
Based on the evidence of available data, determined by the judgement of experts, the substance is classified as STOT-SE Target organ: Respiratory tract (Annex VI, reg. CLP).

Heptane
Based on available data, the substance has specific target organ toxicity effects for single organ target organs and may cause drowsiness or dizziness and is classified under the relevant CLP hazard class. (Annex VI, reg. CLP)

Zinc bis(diethyldithiocarbamate)
Based on the evidence of available data, determined by the judgement of experts, the substance is classified as STOT-SE. Target organ: Respiratory tract (Annex VI, reg. CLP)

STOT - REPEATED EXPOSURE
Does not meet the classification criteria for this hazard class

Zinc bis(dibutyldithiocarbamate)
Bibliographical references: Fd. Cosmet.Toxicol. Vol 14, pp. 237-242 (1978)
Reliability (Klimisch score): 2
Type: rat (Wistar Male/Female)
Exposure: oral
Results: NOAEL 41 mg / kg body weight / day. Reduced body weight gain and food intake, increased relative kidney and liver weight.

Heptane
Bibliographical references: A comparative study of the toxicity of n-pentane, n-hexane, and n-heptane to the peripheral nerve of the rat (Clinical Toxicology 18(12): 1395-1402 (1981))

Reliability (Klimisch score): 2
Type: rat (Wistar Male)
Exposure: inhalation (vapuor)
Results: Based on the evidence of available data, determined by the judgement of experts, the substance is not classified for the hazard class CLP of STOT - RE

Zinc bis(diethyldithiocarbamate)
Based on the evidence of available data, determined by the judgement of experts, the substance is not classified for the hazard class CLP of STOT-RE

ASPIRATION HAZARD
Toxic for aspiration
Heptane
For oil products with a viscosity under 20.5mm2/s at 40°C a specific risk is linked to fluid intake into the lungs, which can occur directly after ingestion, or successively in case of spontaneous or induced vomiting.

SECTION 12. Ecological information

This product is dangerous for the environment and highly toxic for aquatic organisms. In the long term, it have negative effects on aquatic environment.

12.1. Toxicity

Heptane
Bibliographical references: Aquatic Toxicity Predictions Obtained Using the Petrotox Model for Hydrocarbons (CONCAWE, Brussels, Belgium 2010)
Reliability (Klimisch score): 2
Type: Oncorhynchus mykiss
Results LL50: 5738 mg/L/96h

Bibliographical references: Aquatic Toxicity Predictions Obtained Using the Petrotox Model for Hydrocarbons (CONCAWE, Brussels, Belgium 2010)
Reliability (Klimisch score): 2
Type: Oncorhynchus mykiss
Results NOERL: 1.284 mg/L 28 day:

Bibliographical references: Aquatic Toxicity Predictions Obtained Using the Petrotox Model for Hydrocarbons (CONCAWE, Brussels, Belgium 2010)
Reliability (Klimisch score): 2
Type: Pseudokirchneriella subcapitata
Results NOERL: 0.97 mg/L/72h.

Zinc bis(dibutyldithiocarbamate)

LC50 - for Fish	> 16000 µg/l/96h Poecilia reticulata; OECD Guideline 203 (Fish, Acute Toxicity Test)
EC50 - for Crustacea	0,74 mg/l/48h Daphnia magna; Methods of Acute Toxicity Tests with Fish, Macroinvertebrates and Amphibians
EC50 - for Algae / Aquatic Plants	1,1 mg/l/96h Chlorella pyrenoidosa; Aquatic toxicological aspects of dithiocarbamates and related compunds
Chronic NOEC for Fish	0,32 mg/l/10d Danio rerio; OECD Guideline 210 (Fish, Early-Life Stage Toxicity Test)
Chronic NOEC for Crustacea	3,2 µg/l/21d Daphnia magna; Aquatic toxicological aspects of dithiocarbamates and related compounds, Aquatic Toxicology 7: 165-175

Zinc bis(diethyldithiocarbamate)

LC50 - for Fish	0,23 mg/l/96h Oncorhynchus mykiss; Committee on Methods for Toxicity Tests with Aquatic Organisms
EC50 - for Crustacea	0,24 mg/l/48h Daphnia Magna (OECD TG 202)
Chronic NOEC for Fish	101 µg/l (33d) Pimephales promelas; OECD 210; read across
Chronic NOEC for Crustacea	39 µg/l/21d (21d) Daphnia magna; OECD 211; read across

12.2. Persistence and degradability

Zinc bis(dibutyldithiocarbamate)
Method: equivalent or similar to OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test), in GLP
Reliability (Klimisch score): 1
Environmental compartment: water
Results BOD28: 2% O2 consumption. Zinc dibutyldithiocarbamate is considered to be "not readily biodegradable"

Heptane
Equivalent to a result of "Rapidly degradable" (Haines, J.R. and Alexander, M., Applied Microbiology 28(6): 1084-1085).

Zinc bis(diethyldithiocarbamate)
NOT rapidly degradable: CO2 development in 28 days 7.7% (OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test).

12.3. Bioaccumulative potential

Zinc bis(diethyldithiocarbamate)	
Partition coefficient: n-octanol/water	311 Log Pow KOWWIN™ v1.67, U.S. Environmental Protection Agency.

12.4. Mobility in soil

Koc

Zinc bis(dibutyldithiocarbamate)	
Partition coefficient: soil/water	6,26 Koc http://www.epa.gov/oppt/exposure/pubs/episuite.htm

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects

Information not available

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.
Waste transportation may be subject to ADR restrictions.
CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information

14.1. UN number

ADR / RID, IMDG, IATA:	1206

14.2. UN proper shipping name

ADR / RID:	HEPTANES
IMDG:	HEPTANES (Heptane)
IATA:	HEPTANES

14.3. Transport hazard class(es)

ADR / RID:	Class: 3	Label: 3
IMDG:	Class: 3	Label: 3
IATA:	Class: 3	Label: 3

14.4. Packing group

ADR / RID, IMDG, IATA:	II

14.5. Environmental hazards

ADR / RID:	Environmentally Hazardous
IMDG:	Marine Pollutant
IATA:	NO

For Air transport, environmentally hazardous mark is only mandatory for UN 3077 and UN 3082.

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 33	Limited Quantities: 1 L	Tunnel restriction code: (D/E)
	Special Provision: -		
IMDG:	EMS: F-E, S-D	Limited Quantities: 1 L	
IATA:	Cargo:	Maximum quantity: 60 L	Packaging instructions: 364
	Pass.:	Maximum quantity: 5 L	Packaging instructions: 353
	Special Instructions:	-	

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Information not relevant

SECTION 15. Regulatory information

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

Seveso Category - Directive 2012/18/EC: P5c-E1

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product

Point	*3. Liquid substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/ 2008:* *(a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F;* *(b) hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10;* *(c) hazard class 4.1;* *(d) hazard class 5.1.*
Point	*40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to that Regulation or not*.

Substances in Candidate List (Art. 59 REACH)

On the basis of available data, the product does not contain any SVHC in percentage greater than 0,1%.

Substances subject to authorisarion (Annex XIV REACH)

None

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

German regulation on the classification of substances hazardous to water (VwVwS 2005)

WGK 3: Severe hazard to waters

15.2. Chemical safety assessment

No chemical safety assessment has been processed for the mixture and the substances it contains.

SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Flam. Liq. 2	Flammable liquid, category 2
Acute Tox. 4	Acute toxicity, category 4
Asp. Tox. 1	Aspiration hazard, category 1
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
Resp. Sens. 1	Respiratory sensitization, category 1
Skin Sens. 1	Skin sensitization, category 1
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1

Aquatic Chronic 1	Hazardous to the aquatic environment, chronic toxicity, category 1
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H373	May cause damage to organs through prolonged or repeated exposure.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

LEGEND:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

Classification according to Regulation (EC) Nr. 1272/2008	**Classification procedure**
Flammable liquid, category 2	On basis of test data
Aspiration hazard, category 1	Calculation method
Skin irritation, category 2	Calculation method
Respiratory sensitization, category 1	Calculation method
Skin sensitization, category 1	Calculation method
Specific target organ toxicity - single exposure, category 3	Calculation method
Hazardous to the aquatic environment, acute toxicity, category 1	Calculation method
Hazardous to the aquatic environment, chronic toxicity, category 1	Calculation method

GENERAL BIBLIOGRAPHY
1. Regulation (EU) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
4. Regulation (EU) 2015/830 of the European Parliament

5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:
The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.
This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.

Note for the recipient of the Safety Data Sheet (SDS):
This SDS was authored by Flashpoint S.r.l. on the basis of:
a) the provisions contained in EC Regulation no.1907/2006 (REACH), and in particular Article 31 and Annex II of the Regulation, and its subsequent amendments, and
b) information provided by the "Supplier" identified in Section 1 of this SDS and in particular the data necessary to:
i) identify the substance (mono-constituent, multi-constituent or UVCB) or the mixture;
ii) describe the physical and chemical properties (Section 9),
iii) describe the toxicological properties (Section 11)
iv) describe the eco-toxicological properties (Section 12), and
v) appropriately characterize the other sections of the SDS.
Considering that the "data search" in scientific literature and testing for the evaluation of the properties for the substance or the mixture are under the responsibility of the Supplier, Flashpoint S.r.l. assumes no responsibility concerning reliability and completeness of the information referred to the above mentioned point b) in authoring this SDS.
The recipient of this SDS shall make sure of reading and understanding the information included by all people who handle, store, use, or otherwise come into contact in any way with the substance or mixture to which this SDS is referred to. In particular, the recipient shall provide adequate training to the personnel for the use of hazardous substances and/or mixtures. The recipient shall verify the suitability and completeness of the provided information according to the specific use of the substance or mixture.
However, the substance or mixture referred to by this SDS shall not be used for uses other than those specified in Section 1. The Supplier don’t assume responsibility for improper uses. Since the use of the product does not fall under the direct control of the Supplier, the user shall, under his own responsibility, fulfill national and EU regulations concerning health and safety.
The information included in this SDS are provided in good faith and are based on the current state of scientific and technical knowledge, at the revision date indicated, available to the Supplier indicated in Section 1 of this SDS. It shall not be meant that the SDS is a guarantee of any specific property of the substance or mixture. The information concern only to the substance or mixture specifically designated in Section 1 and it could not be valid for the substance or mixture used in combination with other materials or in any process not specified in the text.
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