

SECTION 1: Identification

1.1. Product identifier

Trade name	: TETRACHLOROETHYLENE
Type of product	: Commercial product is usually stabilized
EC-No.	: 204-825-9
EC Index-No.	: 602-028-00-4
CAS-No.	: 127-18-4
UN-No. (ADR)	: 1897
Product code	: 120040xxx
Formula	: C ₂ Cl ₄
Other means of identification	: 1,1,2,2-tetrachloroethene

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

Recommended uses and restrictions	: For laboratory use only
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1.3. Supplier's details

Labchem (Pty)Ltd
 6 Wakefield Road
 Founders Hill
 1609 Johannesburg - South Africa
 T +27 11 452 1116 - F +27 86 588 0293
techlab@labchem.co.za - www.labchem.co.za

1.4. Emergency telephone number

Emergency number	: +27 11 452 1116
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to the United Nations GHS

Acute toxicity (oral), Category 5	H303
Carcinogenicity, Category 2	H351
Hazardous to the aquatic environment — Acute Hazard, Category 2	H401
Hazardous to the aquatic environment — Chronic Hazard, Category 2	H411
Full text of H statements : see section 16	

2.2. Label elements

Labelling according to the United Nations GHS

Hazard pictograms (GHS-ZA) :



Signal word (GHS-ZA) :

Warning

Hazard statements (GHS-ZA) :

H303 - May be harmful if swallowed
 H351 - Suspected of causing cancer.
 H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (GHS-ZA) :

P201 - Obtain special instructions before use.
 P202 - Do not handle until all safety precautions have been read and understood.
 P273 - Avoid release to the environment.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 P308+P313 - IF exposed or concerned: Get medical advice/attention.
 P312 - Call a POISON CENTER or doctor if you feel unwell.
 P391 - Collect spillage.
 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

Adverse physicochemical, human health and environmental effects :

Suspected of causing cancer,Harmful if swallowed,Toxic to aquatic life,Toxic to aquatic life with long lasting effects.

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Safety Data Sheet

According to SANS 10234:2019 and SANS 11014:2010

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance identification codes: See section 1.1

Name	Product identifier	%	Classification according to the United Nations GHS
tetrachloroethylene (Main constituent)	(CAS-No.) 127-18-4	≥ 99.5	Acute Tox. 5 (Oral), H303 Carc. 2, H351 Aquatic Acute 2, H401 Aquatic Chronic 2, H411

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

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. Never give alcohol to drink. IF exposed or concerned: Get medical advice/attention. Call a poison center or a doctor if you feel unwell.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Rinse with water. Soap may be used. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists. Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists. Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Rinse mouth with water. Do not induce vomiting. Call Poison Information Centre (www.big.be/antigif.html). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Rinse mouth. Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation	: Central nervous system depression. Dizziness. Feeling of weakness. Headache. Nausea. Narcosis. Drunkenness. EXPOSURE TO HIGH CONCENTRATIONS: Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Coordination disorders. Disturbances of consciousness. Disturbances of heart rate. Possible laryngeal spasm/oedema. Risk of lung oedema. Respiratory difficulties. Decreased renal function.
Symptoms/effects after skin contact	: Slight irritation. ON CONTINUOUS EXPOSURE/CONTACT: Blisters.
Symptoms/effects after eye contact	: Slight irritation. EXPOSURE TO HIGH CONCENTRATIONS: Visual disturbances.
Symptoms/effects after ingestion	: Risk of aspiration pneumonia. Vomiting. Nausea. AFTER INGESTION OF HIGH QUANTITIES: Central nervous system depression. Symptoms similar to those listed under inhalation.
Chronic symptoms	: Red skin. Dry skin. Skin rash/inflammation. Enlargement/affection of the liver. Affection of the renal tissue. Possible bladder tumours.
Potential adverse human health effects and symptoms	: Produces effects on the nervous system. Odour tolerance may develop. Practically non-toxic if swallowed (LD50 oral, rat > 2000 mg/kg). Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg). Non-toxic in contact with skin (LD50 skin > 5000 mg/kg). Slightly irritant to eyes. Caution! Substance is absorbed through the skin.

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 : Adapt extinguishing media to the environment for surrounding fires. Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: DIRECT FIRE HAZARD: Non combustible.
Explosion hazard	: INDIRECT EXPLOSION HAZARD: Reactions with explosion hazards: see "Reactivity Hazard".
Hazardous decomposition products in case of fire	: On heating/burning: release of toxic and corrosive gases/vapours (phosgene, chlorine, hydrogen chloride, carbon monoxide - carbon dioxide).

5.3. Advice for firefighters

Precautionary measures fire : Exposure to fire/heat: consider evacuation.

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According to SANS 10234:2019 and SANS 11014:2010

- Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Take account of toxic/corrosive precipitation water. Dilute toxic gases with water spray. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.
- Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No additional information available

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus. Large spills/in enclosed spaces: gas-tight suit.
- Emergency procedures : Ventilate spillage area. Keep upwind. Mark the danger area. Seal off low-lying areas. Close doors and windows of adjacent premises. No naked flames. Keep containers closed. Wash contaminated clothes. Large spills/in confined spaces: consider evacuation. In case of reactivity hazard: consider evacuation.

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. Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Dilute toxic gases/vapours with water spray. Take account of toxic/corrosive precipitation water. Collect spillage.
- Methods for cleaning up : Take up liquid spill into absorbent material. Take up liquid spill into absorbent material, e.g.: kieselguhr, powdered limestone or dry sand/earth. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling. Notify authorities if product enters sewers or public waters.
- Other information : Dispose of materials or solid residues at an authorized site.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep container tightly closed. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment.
- Hygiene measures : Observe strict hygiene. 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 locked up. Store in a well-ventilated place. Keep cool.
- Storage area : Store in a cool area. Store in a dry area. Store in a dark area. Ventilation at floor level. Keep locked up. Provide for a tub to collect spills. Unauthorized persons are not admitted. Meet the legal requirements.
- Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources.
- Information on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. (strong) bases. metals. metallic salts. amines.
- Special rules on packaging : SPECIAL REQUIREMENTS: hermetical. dry. clean. opaque. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
- Packaging materials : SUITABLE MATERIAL: steel. stainless steel. glass. MATERIAL TO AVOID: aluminium. iron. zinc. copper. plastics.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

TETRACHLOROETHYLENE (127-18-4)	
South Africa - Occupational Exposure Limits (Recommended Limits)	
Local name	Perchloroethylene (Tetrachloroethylene)
OEL TWA (mg/m ³)	335 mg/m ³

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TETRACHLOROETHYLENE (127-18-4)	
OEL TWA (ppm)	50 ppm
OEL STEL (mg/m ³)	1000 mg/m ³
OEL STEL (ppm)	150 ppm
Regulatory reference	Government Notice. R: 1179

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment (PPE)

Materials for protective clothing : GIVE GOOD RESISTANCE: PVA. FPM. viton. ethyl vinyl alcohol laminate. GIVE LESS RESISTANCE: butyl rubber. nitrile rubber. GIVE POOR RESISTANCE: neoprene. PVC. polyethylene
Hand protection : Protective gloves against chemicals (EN 374)
Eye protection : Safety glasses. Safety glasses
Skin and body protection : Protective clothing
Respiratory protection : Full face mask with filter type A at conc. in air > exposure limit

Personal protective equipment symbol(s):



8.4. Exposure limit values for the other components

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Appearance : Liquid.
Molecular mass : 165.83 g/mol
Colour : Colourless.
Odour : Sweet odour. Ether-like odour.
Odour threshold : No data available
pH : 6.8 – 8.4
pH solution : No data available
Relative evaporation rate (butylacetate=1) : 2
Relative evaporation rate (ether=1) : 8
Melting point : -22 °C (1013 hPa)
Freezing point : No data available
Boiling point : 121.4 °C (1013 hPa)
Flash point : Not applicable
Critical temperature : 347 °C
Auto-ignition temperature : Not applicable
Decomposition temperature : > 150 °C
Flammability (solid, gas) : Not applicable
Vapour pressure : 25 hPa (25 °C)
Vapour pressure at 50 °C : 82 hPa
Relative vapour density at 20 °C : 5.8
Relative density : 1.61 (25 °C)
Relative density of saturated gas/air mixture : 1.1
Density : 1623 kg/m³
Relative gas density : No data available

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According to SANS 10234:2019 and SANS 11014:2010

Solubility	: Insoluble in water. Substance sinks in water. Soluble in ethanol. Soluble in ether. Soluble in acetone. Soluble in chloroform. Soluble in tetrachloromethane. Soluble in hexane. Soluble in oils/fats. Water: 0.015 g/100ml (25 °C) Ethanol: miscible Ether: miscible Acetone: > 10 g/100ml
Partition coefficient n-octanol/water (Log Pow)	: 2.53 (Experimental value, Equivalent or similar to OECD 107, 23 °C)
Partition coefficient n-octanol/water (Log Kow)	: No data available
Viscosity, kinematic	: 0.555 mm ² /s (20 °C)
Viscosity, dynamic	: 0.88 mPa·s (20 °C)
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available
Lower explosive limit (LEL)	: No data available
Upper explosive limit (UEL)	: No data available

9.2. Other information

Saturation concentration	: 127 g/m ³
VOC content	: 100 %
Other properties	: Gas/vapour heavier than air at 20°C. Clear. Volatile.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts violently with (some) acids/bases. Violent to explosive reaction with (strong) oxidizers. Violent to explosive reaction with (some) metal powders. This reaction is accelerated on exposure to water (moisture).

10.2. Chemical stability

Decomposes slowly on exposure to light.

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

Unstabilized product decomposes on exposure to light, on exposure to air and on exposure to water (moisture): release of toxic and corrosive gases/vapours, phosgene, hydrogen chloride.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: May be harmful if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

TETRACHLOROETHYLENE (127-18-4)	
LD50 oral rat	3835 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Male, Experimental value, Oral)
LD50 dermal rabbit	> 3000 mg/kg (Rabbit, Literature study, Dermal)
LC50 inhalation rat (mg/l)	27.58 mg/l (4 h, Rat, Literature study, Inhalation)
LC50 inhalation rat (ppm)	3786 ppm (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (vapours))

Skin corrosion/irritation	: Not classified pH: 6.8 – 8.4
Serious eye damage/irritation	: Not classified pH: 6.8 – 8.4
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Suspected of causing cancer.
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified

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Aspiration hazard : Not classified

TETRACHLOROETHYLENE (127-18-4)

Viscosity, kinematic	0.555 mm ² /s (20 °C)
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Potential adverse human health effects and symptoms : Produces effects on the nervous system. Odour tolerance may develop. Practically non-toxic if swallowed (LD50 oral, rat > 2000 mg/kg). Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg). Non-toxic in contact with skin (LD50 skin > 5000 mg/kg). Slightly irritant to eyes. Caution! Substance is absorbed through the skin.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Dangerous for the environment. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Ecology - air : Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology - water : Toxic to crustacea. Toxic to fishes. Groundwater pollutant. Not harmful to activated sludge. Toxic to algae. Slightly harmful to bacteria.

Hazardous to the aquatic environment, short-term (acute) : Toxic to aquatic life.

Hazardous to the aquatic environment, long-term (chronic) : Toxic to aquatic life with long lasting effects.

TETRACHLOROETHYLENE (127-18-4)

LC50 fish 1	5 mg/l (Other, 96 h, Salmo gairdneri, Flow-through system, Fresh water, Experimental value, Locomotor effect)
EC50 Daphnia 1	8.5 mg/l (ASTM, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
EC50 72h algae (1)	3.64 mg/l (Other, Chlamydomonas reinhardtii, Fresh water, Experimental value, Growth rate)
BCF fish 1	25.8 – 77.1 (8 week(s), Cyprinus carpio)
BCF fish 2	49 (Other, 21 day(s), Lepomis macrochirus, Flow-through system, Fresh water, Experimental value, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	2.53 (Experimental value, Equivalent or similar to OECD 107, 23 °C)
Partition coefficient n-octanol/water (Log Koc)	2.15 (log Koc, Experimental value)

12.2. Persistence and degradability

TETRACHLOROETHYLENE (127-18-4)

Persistence and degradability	Not readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.06 g O ₂ /g substance
ThOD	0.39 g O ₂ /g substance
BOD (% of ThOD)	0.15

12.3. Bioaccumulative potential

TETRACHLOROETHYLENE (127-18-4)

BCF fish 1	25.8 – 77.1 (8 week(s), Cyprinus carpio)
BCF fish 2	49 (Other, 21 day(s), Lepomis macrochirus, Flow-through system, Fresh water, Experimental value, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	2.53 (Experimental value, Equivalent or similar to OECD 107, 23 °C)
Partition coefficient n-octanol/water (Log Koc)	2.15 (log Koc, Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

TETRACHLOROETHYLENE (127-18-4)

Mobility in soil	No additional information available
Surface tension	32.1 mN/m (20 °C)
Partition coefficient n-octanol/water (Log Pow)	2.53 (Experimental value, Equivalent or similar to OECD 107, 23 °C)
Partition coefficient n-octanol/water (Log Koc)	2.15 (log Koc, Experimental value)
Ecology - soil	Low potential for adsorption in soil.

12.5. Other adverse effects

Ozone : Not classified

Other adverse effects : No additional information available

TETRACHLOROETHYLENE

Safety Data Sheet

According to SANS 10234:2019 and SANS 11014:2010




SECTION 13: Disposal considerations

13.1. Disposal methods

- Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
- Product/Packaging disposal recommendations : Do not discharge into surface water (Directive 2000/60/EC, Council Decision 2455/2001/EC). 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. Recycle by distillation. Remove to an incinerator for chlorinated waste materials with energy recovery.
- Additional information : Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

In accordance with SANS / IMDG / IATA

SANS	IMDG	IATA
14.1. UN number		
1897	1897	1897
14.2. Proper Shipping Name		
TETRACHLOROETHYLENE	TETRACHLOROETHYLENE	Tetrachloroethylene
14.3. Transport hazard class(es)		
6.1	6.1	6.1
		 Not applicable
14.4. Packing group		
III	III	III
14.5. Environmental hazards		
Dangerous for the environment : Yes	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available		

14.6. Special precautions for user

- SANS

- Transport regulations (UN) : Subject to the provisions
- Limited quantities (SANS) : 5 L
- Limited quantities (SANS) : 5 L
- Packagings, large packagings and IBCs : P001, IBC03, LP01
- Packing instructions (SANS)
- Portable tank and bulk containers instructions (SANS) : T4
- Portable tank and bulk container special provisions (SANS) : TP1

- IMDG

- Transport regulations (IMDG) : Subject to the provisions
- Limited quantities (IMDG) : 5 L
- Excepted quantities (IMDG) : E1
- Packing instructions (IMDG) : P001, LP01
- IBC packing instructions (IMDG) : IBC03
- Tank instructions (IMDG) : T4
- Tank special provisions (IMDG) : TP1
- EmS-No. (Fire) : F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
- EmS-No. (Spillage) : S-A - SPILLAGE SCHEDULE Alfa - TOXIC SUBSTANCES
- Stowage category (IMDG) : A
- Properties and observations (IMDG) : Colourless liquid with an ethereal odour. When involved in a fire, evolves extremely toxic fumes (phosgene). Toxic if swallowed, by skin contact or by inhalation.

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According to SANS 10234:2019 and SANS 11014:2010

- IATA

Transport regulations (IATA)	: Subject to the provisions
PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y642
PCA limited quantity max net quantity (IATA)	: 2L
PCA packing instructions (IATA)	: 655
PCA max net quantity (IATA)	: 60L
CAO packing instructions (IATA)	: 663
CAO max net quantity (IATA)	: 220L
ERG code (IATA)	: 6L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health, and environmental national regulations specific for the product

Regulatory reference : SANS 10234:2008; SANS 11014:2010; SANS 10228:2012; SANS 10229:2010; SANS 10232(1,2,4), SANS 10231:2018; Occupational Health and Safety Act 85 of 1993; National Road Traffic Act 93 of 1996.

SECTION 16: Other information

Issue date : 20/07/2020
Revision date : 20/07/2025

Full text of H-statements:

H303	May be harmful if swallowed
H351	Suspected of causing cancer.
H401	Toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects.

SDS South Africa

The data provided in this Safety Data Sheet (SDS) is correct to the best of our knowledge. The data relates to the specific product as named and is intended as a guide to the safe handling of the product in all its facets. The data may no longer be valid if the product is used in any process or in combination with other products. This SDS is not a quality specification nor any form of guarantee.