

Therminol® VLT Heat Transfer Fluid

Version 1.1 PRD Revision Date: 07/05/2019 SDS Number: 150000093458 Date of last issue: -
Date of first issue: 09/06/2016
SDSUS / Z8 / 0001

SECTION 1. IDENTIFICATION

Product name : Therminol® VLT Heat Transfer Fluid
Product code : 34151-00, P3415103, P3415102, P3415101

Manufacturer or supplier's details

Company name of supplier : Eastman Chemical Company
Address : 200 South Wilcox Drive
Kingsport TN 37660-5280
Telephone : (423) 229-2000
Emergency telephone : CHEMTREC: +1-800-424-9300, +1-703-527-3887 CCN7321

Recommended use of the chemical and restrictions on use

Recommended use : Heat transfer fluids
Restrictions on use : None known.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids : Category 2
Skin irritation : Category 2
Specific target organ systemic toxicity - single exposure : Category 3 (Central nervous system)
Aspiration hazard : Category 1

GHS label elements

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H225 Highly flammable liquid and vapor.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.

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Version	Revision Date:	SDS Number:	Date of last issue: -
1.1	07/05/2019	150000093458	Date of first issue: 09/06/2016
PRD		SDSUS / Z8 / 0001	

Precautionary Statements

:

Prevention:

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
 P233 Keep container tightly closed.
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
 P242 Use only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
 P264 Wash skin thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/ eye protection/ face protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
 P331 Do NOT induce vomiting.
 P332 + P313 If skin irritation occurs: Get medical advice/ attention.
 P362 Take off contaminated clothing and wash before reuse.
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P403 + P235 Store in a well-ventilated place. Keep cool.
 P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**Components**

Chemical name	CAS-No.	Concentration (% w/w)
Methylcyclohexane	108-87-2	70 - 75
2,2,4-Trimethylpentane	540-84-1	25 - 30

SECTION 4. FIRST AID MEASURES

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Version	Revision Date:	SDS Number:	Date of last issue: -
1.1	07/05/2019	15000093458	Date of first issue: 09/06/2016
PRD		SDSUS / Z8 / 0001	

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- | | | |
|---|---|---|
| If inhaled | : | Remove person to fresh air and keep comfortable for breathing.
If breathing is difficult, give oxygen.
Get medical attention if symptoms occur. |
| In case of skin contact | : | Wash off with soap and plenty of water.
If skin irritation occurs: Get medical advice/ attention.
Wash contaminated clothing before reuse. |
| In case of eye contact | : | In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
Get medical attention if symptoms occur. |
| If swallowed | : | Call a physician or poison control center immediately.
Do NOT induce vomiting.
Rinse mouth.
Never give anything by mouth to an unconscious person. |
| Most important symptoms and effects, both acute and delayed | : | May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause drowsiness or dizziness. |
| Notes to physician | : | Treat symptomatically. |

SECTION 5. FIRE-FIGHTING MEASURES

- | | | |
|--|---|---|
| Suitable extinguishing media | : | Water spray
Carbon dioxide (CO2)
Dry chemical
Foam |
| Unsuitable extinguishing media | : | Do not use a solid water stream as it may scatter and spread fire. |
| Hazardous combustion products | : | Hazardous decomposition products due to incomplete combustion
Carbon oxides |
| Further information | : | Use a water spray to cool fully closed containers.
Do not allow run-off from fire fighting to enter drains or water courses.

Highly flammable liquid and vapor. |
| Special protective equipment for fire-fighters | : | Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear. |

SECTION 6. ACCIDENTAL RELEASE MEASURES

- | | | |
|---|---|---|
| Personal precautions, protective equipment and emergency procedures | : | Remove all sources of ignition.
Ventilate the area.
Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. |
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Therminol® VLT Heat Transfer Fluid

Version	Revision Date:	SDS Number:	Date of last issue: -
1.1	07/05/2019	15000093458	Date of first issue: 09/06/2016
PRD		SDSUS / Z8 / 0001	

Avoid contact with skin and eyes.
Material can create slippery conditions.
Wear appropriate personal protective equipment.
Local authorities should be advised if significant spillages cannot be contained.

- Environmental precautions : Clear up spills immediately and dispose of waste safely.
Avoid release to the environment.
- Methods and materials for containment and cleaning up : Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Do not breathe vapors or spray mist.
Handle product only in closed system or provide appropriate exhaust ventilation at machinery.
In case of insufficient ventilation, wear suitable respiratory equipment.
Keep away from flames and sparks.
Wear appropriate personal protective equipment.
Avoid contact with skin, eyes and clothing.
Wash thoroughly after handling.
Wash contaminated clothing before reuse.
Drain or remove substance from equipment prior to break-in or maintenance.
Handle in accordance with good industrial hygiene and safety practice.
- Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Keep in a cool place away from oxidizing agents.
- Keep away from food, drink and animal feedingstuffs.
In accordance with local and national regulations.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Methylcyclohexane	108-87-2	TWA	400 ppm	ACGIH
		TWA	400 ppm 1,600 mg/m ³	NIOSH REL
		TWA	500 ppm 2,000 mg/m ³	OSHA Z-1
		TWA	400 ppm 1,600 mg/m ³	OSHA P0

Therminol® VLT Heat Transfer Fluid

Version	Revision Date:	SDS Number:	Date of last issue: -
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Engineering measures : Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal protective equipment

Respiratory protection : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary.
Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Hand protection

Remarks : Wear suitable gloves. When handling hot material, use heat resistant gloves.

Eye protection : Wear safety glasses with side shields (or goggles).

Skin and body protection : Wear suitable protective clothing.

Protective measures : Ensure that eye flushing systems and safety showers are located close to the working place.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : colorless

Odor : hydrocarbon-like

Odor Threshold : not determined

pH : not determined

Melting point/freezing point : -211 °F / -135 °C

Boiling point/boiling range : 210.6 °F / 99.2 °C

Flash point : 19 °F / -7 °C

Method: Tag closed cup

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Version	Revision Date:	SDS Number:	Date of last issue: -
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Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Self-ignition	:	507 °F / 264 °C Method: ASTM E659
Upper explosion limit / Upper flammability limit	:	not determined
Lower explosion limit / Lower flammability limit	:	not determined
Vapor pressure	:	59.3 hPa (72.0 °F / 22.2 °C)
Relative vapor density	:	0.2845 (77 °F / 25 °C)
Relative density	:	approx. 0.753 (59 °F / 15 °C)
Density	:	743.3 kg/m ³ (77 °F / 25 °C)
Solubility(ies)	:	
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	Not applicable Mixture
Autoignition temperature	:	not determined
Decomposition temperature	:	not determined
Viscosity	:	
Viscosity, dynamic	:	0.88 mPa.s (32 °F / 0 °C) 0.52 mPa.s (104 °F / 40 °C) 0.28 mPa.s (212 °F / 100 °C)
Viscosity, kinematic	:	1.14 mm ² /s (32 °F / 0 °C) 0.71 mm ² /s (104 °F / 40 °C) 0.41 mm ² /s (212 °F / 100 °C)
Explosive properties	:	Not classified
Oxidizing properties	:	Not classified

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable under normal conditions.
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Version	Revision Date:	SDS Number:	Date of last issue: -
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PRD		SDSUS / Z8 / 0001	

Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	None known.
Conditions to avoid	:	Heating in air. Keep away from flames and sparks.
Incompatible materials	:	Strong oxidizing agents
Hazardous decomposition products	:	Emits acrid smoke and fumes when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity**

Not classified based on available information.

Product:

Acute oral toxicity	:	Remarks: No data available
Acute inhalation toxicity	:	Remarks: No data available
Acute dermal toxicity	:	Remarks: No data available

Components:**Methylcyclohexane:**

Acute oral toxicity	:	LD50 Oral (Rat): > 5,000 mg/kg Assessment: Not classified Remarks: Read-across from a similar material
Acute inhalation toxicity	:	LC50 (Rat): > 23.3 mg/l Exposure time: 4 h Test atmosphere: vapor Assessment: Not classified Remarks: Read-across from a similar material
Acute dermal toxicity	:	LD50 Dermal (Rabbit): > 2,000 mg/kg Assessment: Not classified Remarks: Read-across from a similar material

Skin corrosion/irritation

Causes skin irritation.

Product:

Remarks	:	No data available
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Components:**Methylcyclohexane:**

Assessment	:	Causes skin irritation.
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Therminol® VLT Heat Transfer Fluid

Version Revision Date: SDS Number: Date of last issue: -
1.1 07/05/2019 150000093458 Date of first issue: 09/06/2016
PRD SDSUS / Z8 / 0001

Reproductive toxicity

Not classified based on available information.

Product:

Effects on fertility : Remarks: No data available

STOT-single exposure

May cause drowsiness or dizziness.

Product:

Routes of exposure : Inhalation
Assessment : May cause drowsiness or dizziness.

Components:**Methylcyclohexane:**

Assessment : May cause drowsiness or dizziness.

STOT-repeated exposure

Not classified based on available information.

Product:

Assessment : Not classified

Aspiration toxicity

May be fatal if swallowed and enters airways.

Product:

May be fatal if swallowed and enters airways.

Components:**Methylcyclohexane:**

May be fatal if swallowed and enters airways.

Information on likely routes of exposure**Product:**

Inhalation : Remarks: May cause drowsiness or dizziness.

Skin contact : Remarks: Causes skin irritation.

Eye contact : Remarks: None known.

Ingestion : Remarks: May be fatal if swallowed and enters airways.

Components:**Methylcyclohexane:**

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Version	Revision Date:	SDS Number:	Date of last issue: -
1.1	07/05/2019	150000093458	Date of first issue: 09/06/2016
PRD		SDSUS / Z8 / 0001	

Inhalation	:	Remarks: Vapors may cause drowsiness and dizziness.
Skin contact	:	Remarks: Causes skin irritation.
Eye contact	:	Remarks: None known.
Ingestion	:	Remarks: May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity**Product:**

Toxicity to daphnia and other aquatic invertebrates : EC50:
Remarks: No data available

Toxicity to algae/aquatic plants : EC50:
Remarks: No data available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC:
Remarks: No data available

Components:**Methylcyclohexane:**

Toxicity to fish : LC50 (Fish): 72 mg/l
Exposure time: 96 h

Persistence and degradability**Product:**

Biochemical Oxygen Demand (BOD) : Remarks: No data available

Chemical Oxygen Demand (COD) : Remarks: No data available

Bioaccumulative potential**Product:**

Bioaccumulation : Remarks: Not applicable
Mixture

Mobility in soil**Product:**

Distribution among environmental compartments : Remarks: No data available

Therminol® VLT Heat Transfer Fluid

Version	Revision Date:	SDS Number:	Date of last issue: -
1.1	07/05/2019	150000093458	Date of first issue: 09/06/2016
PRD		SDSUS / Z8 / 0001	

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of in accordance with local regulations. Empty containers should be taken to an approved waste handling site for recycling or disposal. This material when discarded may be a hazardous waste as that term is defined by the Resource Conservation and Recovery Act (RCRA), 40 CFR 261.24, due to its toxicity characteristic. This material should be analyzed in accordance with Method 1311 for the compound D018 BENZENE. Consult 40 CFR 268.40 or appropriate local regulations for concentration based standards. This product meets the criteria for a synthetic used oil under the U.S. EPA Standards for the Management of Used Oil (40 CFR 279). Those standards govern recycling and disposal in lieu of 40 CFR 260 -272 of the Federal hazardous waste program in states that have adopted these used oil regulations. Consult your attorney or appropriate regulatory official to be sure these standards have been adopted in your state. Recycle or burn in accordance with the applicable standards. Eastman Chemical Company operates a used fluid return program for certain fluids under these used oil standards. Contact your Sales Representative for details.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

UN/ID No. : UN 1993
Proper shipping name : Flammable liquid, n.o.s.
(methylcyclohexane, 2,2,4-trimethylpentane)
Class : 3
Packing group : II
Labels : Flammable Liquids
Packing instruction (cargo aircraft) : 364
Packing instruction (passenger aircraft) : 353

IMDG-Code

UN number : UN 1993
Proper shipping name : FLAMMABLE LIQUID, N.O.S.
(methylcyclohexane, 2,2,4-trimethylpentane)
Class : 3
Packing group : II

Therminol® VLT Heat Transfer Fluid

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1.1	07/05/2019	150000093458	Date of first issue: 09/06/2016
PRD		SDSUS / Z8 / 0001	

Labels : 3
 EmS Code : F-E, S-E
 Marine pollutant : yes

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

Not applicable for product as supplied.

Domestic regulation**49 CFR**

UN/ID/NA number : UN 1993
 Proper shipping name : Flammable liquids, n.o.s.
 (methylcyclohexane, 2,2,4-trimethylpentane)
 Class : 3
 Packing group : II
 Labels : Class 3 - Flammable Liquid
 ERG Code : 128
 Marine pollutant : yes(methylcyclohexane, 2,2,4-trimethylpentane)

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION**EPCRA - Emergency Planning and Community Right-to-Know****CERCLA Reportable Quantity**

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
2,2,4-Trimethylpentane	540-84-1	1000	3636

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
 Skin corrosion or irritation
 Specific target organ toxicity (single or repeated exposure)
 Aspiration hazard

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

The ingredients of this product are reported in the following inventories:

DSL : All components of this product are on the Canadian DSL

Therminol® VLT Heat Transfer Fluid

Version	Revision Date:	SDS Number:	Date of last issue: -
1.1	07/05/2019	15000093458	Date of first issue: 09/06/2016
PRD		SDSUS / Z8 / 0001	

AICS : On the inventory, or in compliance with the inventory

ENCS : On the inventory, or in compliance with the inventory

ISHL : On the inventory, or in compliance with the inventory

KECI : On the inventory, or in compliance with the inventory

PICCS : On the inventory, or in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

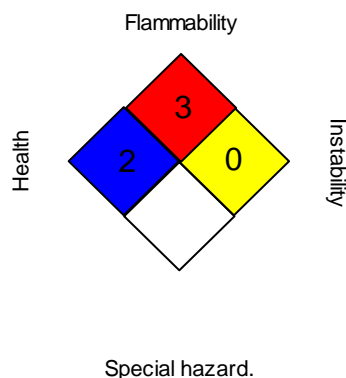
TCSI : On the inventory, or in compliance with the inventory

TSCA : All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION**Further information****NFPA 704:****HMIS® IV:**

HEALTH	/	3
FLAMMABILITY		3
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

NIOSH REL : USA. NIOSH Recommended Exposure Limits

OSHA P0 : USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

Therminol® VLT Heat Transfer Fluid

Version	Revision Date:	SDS Number:	Date of last issue: -
1.1	07/05/2019	150000093458	Date of first issue: 09/06/2016
PRD		SDSUS / Z8 / 0001	

ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA P0 / TWA	:	8-hour time weighted average
OSHA Z-1 / TWA	:	8-hour time weighted average

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECS - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet : www.therminol.com/products/

Revision Date : 07/05/2019

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and re-release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US / Z8