

SAFETY DATA SHEET

JEFFCOOL® E104N

Section 1. Identification

GHS product identifier : JEFFCOOL® E104N
Product code : 00035418
Other means of identification : Not available.
Product type : Liquid.

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

Product use : Heat transfer fluid.

Supplier's details : Huntsman International LLC
P.O. Box 4980
The Woodlands, TX 77387

Technical Information: (281) 719-7780

e-mail address of person responsible for this SDS : MSDS@huntsman.com

Emergency telephone number (24h/7day) : Chemtrec: (800) 424-9300 or (703) 527-3887

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : ACUTE TOXICITY: ORAL - Category 4
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2B
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [central nervous system (CNS) and kidneys] - Category 2
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) [central nervous system (CNS), kidneys and liver] - Category 2
AQUATIC HAZARD (ACUTE) - Category 3

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements :

Section 2. Hazards identification

Harmful if swallowed.
 Causes eye irritation.
 May cause damage to organs. (central nervous system (CNS), kidneys)
 May cause damage to organs through prolonged or repeated exposure. (central nervous system (CNS), kidneys, liver)
 Harmful to aquatic life.

Precautionary statements : Wear eye or face protection. Avoid release to the environment. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Get medical attention if you feel unwell. IF exposed or if you feel unwell: Call a POISON CENTER or physician. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention. Store locked up. Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
Ethylene glycol	30 - 60	107-21-1
Sodium nitrite	0.1 - 1	7632-00-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell. If necessary, call a poison center or physician.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention following exposure or if feeling unwell. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get

Section 4. First aid measures

medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : Harmful if swallowed. May be irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
irritation
watering
redness
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treatment with ethyl alcohol is indicated if toxic ingestion is suspected or if there is metabolic acidosis following ingestion of this product. Administer ethyl alcohol sufficient to maintain blood ethyl alcohol levels of above 100 mg/dL.
- 4-Methylpyrazole (Fomepizole, Antizole) is also a recognized antidote for this product.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

- Flash point** : Closed cup: >93.4°C (>200.1°F)

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

- Hazardous thermal decomposition products** :

Section 5. Fire-fighting measures

Decomposition products may include the following materials:
 carbon dioxide
 carbon monoxide
 phosphorus oxides
 metal oxide/oxides

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
- Methods and materials for containment and cleaning up** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** :

Section 7. Handling and storage

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Ethylene glycol	ACGIH TLV (United States, 3/2012). C: 100 mg/m ³ 0 hours. Form: Aerosol

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Thermal hazards** : Not available.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Blue.
- Odor** : Slight
- Odor threshold** : Not available.
- pH** : 10.2
- Melting point/Freezing point** : -25°C (-13°F)
- Boiling/condensation point** : 108.9°C (228°F)
- Flash point** : Closed cup: >93.4°C (>200.1°F)
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : >0.013 kPa (>0.1 mm Hg) [room temperature]
- Vapor density** : 2.1 [Air = 1]
- Relative density** : 1.1
- Solubility in water** : Soluble
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Kinematic (room temperature): <0.187 cm²/s (<18.7 cSt)

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : No specific data.
- Incompatible materials** : No specific data.

Section 10. Stability and reactivity

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Test	Endpoint	Species	Result
Ethylene glycol	No official guidelines	LD50 Dermal	Mouse - Male, Female	>3500 mg/kg
	No official guidelines	LD50 Oral	Rat - Male, Female	7712 mg/kg

Irritation/Corrosion

Product/ingredient name	Test	Species	Result
Ethylene glycol	No official guidelines	Rabbit	Skin - Non-irritant. Eyes - Non-irritant.
	No official guidelines	Rabbit	

Conclusion/Summary

Skin : Ethylene glycol Non-irritating to the skin.
Sodium nitrite No additional information.

Eyes : Ethylene glycol Non-irritating to the eyes.
Sodium nitrite No additional information.

Respiratory : Ethylene glycol No additional information.
Sodium nitrite No additional information.

Sensitization

Product/ingredient name	Test	Route of exposure	Species	Result
Ethylene glycol	No official guidelines	skin	Guinea pig	Not sensitizing

Mutagenicity

Product/ingredient name	Test	Result
Ethylene glycol	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: +/-	Negative
	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: +/-	Negative
	Experiment: In vivo Subject: Mammalian-Animal Cell: Germ	Negative
	Experiment: In vivo Subject: Mammalian-Animal	Negative

Carcinogenicity

Section 11. Toxicological information

Product/ingredient name	Test	Species	Dose	Exposure	Result/Result type
Ethylene glycol	No official guidelines	Mouse - Male, Female	1500 mg/kg	103 weeks	Negative - Oral - NOAEL
	No official guidelines	Rat - Male, Female	1000 mg/kg	24 months; 7 days per week	Negative - Oral - NOAEL

Reproductive toxicity

Not available.

Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
Ethylene glycol	No official guidelines	Mouse - Male, Female	Positive - Oral
	No official guidelines	Rat - Male, Female	Positive - Oral
	-	Mouse - Male, Female	Negative - Dermal
	No official guidelines	Rabbit - Male, Female	Negative - Oral

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Ethylene glycol	Category 2	Not determined	central nervous system (CNS) and kidneys

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Ethylene glycol	Category 2	Not determined	central nervous system (CNS), kidneys and liver

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Causes eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : Harmful if swallowed. May be irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
irritation
watering
redness
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Section 11. Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Test	Endpoint	Species	Result
Ethylene glycol	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Sub-chronic NOAEL Oral	Rat - Male, Female	150 mg/kg/d
	-	Chronic NOAEL Oral	Rat - Male, Female	200 mg/kg/d
	-	Chronic NOAEL Oral	Mouse - Male, Female	1500 mg/kg/d
	OECD 407 Repeated Dose 28-day Oral Toxicity Study in Rodents	Sub-acute NOAEL Oral	Rat - Male, Female	200 mg/kg/d
	OECD 410 Repeated Dose Dermal Toxicity: 21/28-day Study	Sub-acute NOEL Dermal	Dog - Male	>4000 mg/kg
	OECD 410 Repeated Dose Dermal Toxicity: 21/28-day Study	Sub-acute NOAEL Dermal	Dog - Male	>2000 mg/kg
Sodium nitrite	-	Chronic NOEL Oral	Rat - Male	10 mg/kg/d

General : May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	868.6 mg/kg

Other information : Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result
Ethylene glycol	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test No official guidelines	Acute EC50	48 hours Static	Daphnia	>100 mg/l
	Unknown guidelines	Acute ErC50 (growth rate) LC50	96 hours Static	Algae	6500 to 13000 mg/l
	ISO ISO 8192	Chronic EC20	30 minutes Static	Bacteria	>1995 mg/l
	Unknown guidelines	Chronic NOEC	7 days Static	Daphnia	8590 mg/l
	Unknown guidelines	Chronic NOEC	7 days Static	Fish	15380 mg/l
Sodium nitrite	-	Acute EC50	48 hours Static	Daphnia	15.4 mg/l
	OECD 201 Alga, Growth Inhibition Test No official guidelines	Acute ErC50 (growth rate) LC50	72 hours Static	Algae	>100 mg/g
	-	Chronic NOEC	96 hours Flow-through	Fish	0.54 to 26.3 mg/l
	-	Chronic NOEC	80 days Semi-static	Daphnia	9.86 mg/l
	-	Chronic NOEC	30 days Renewal	Fish	1.05 to 21 mg/l

Persistence and degradability

Product/ingredient name	Test	Period	Result
Ethylene glycol	OECD 301A Ready Biodegradability - DOC Die-Away Test	10 days	90 to 100 %

Conclusion/Summary : Ethylene glycol Readily biodegradable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Ethylene glycol	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Ethylene glycol	-1.36	-	low

Mobility in soil

Not available.

Other adverse effects : No known significant effects or critical hazards.

Other ecological information

BOD5 : Not determined.

COD : Not determined.

Section 12. Ecological information

TOC : Not determined.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14. Transport information


Proper shipping name

DOT : Environmentally hazardous substance, liquid, n.o.s. (SODIUM NITRITE, ETHYLENE GLYCOL)

TDG : Not regulated.

IMDG : Not regulated.

IATA : Not regulated.

Regulatory information	UN number	Classes	PG*	Label	Additional information
DOT Classification	UN3082	9	III		Reportable quantity 100 lbs. (45.4 kg) 5000 lbs. (2270 kg)
TDG Classification	Not regulated.	-	-		-
IMDG Classification	Not regulated.	-	-		-
IATA Classification	Not regulated.	-	-		-

PG* : Packing group

Section 15. Regulatory information

Safety, health and environmental regulations specific for the product

United States Regulations

TSCA 8(b) inventory : All components are listed or exempted.

TSCA 5(a)2 final significant new use rule (SNUR) : Sodium nitrite

TSCA 5(e) substance consent order : No ingredients listed.

TSCA 12(b) export notification : No ingredients listed.

SARA 311/312 : Immediate (acute) health hazard
Delayed (chronic) health hazard

	<u>Product name</u>	<u>Concentration %</u>
Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	: Ethylene glycol	34.65 - 57.564

Clean Air Act - Ozone Depleting Substances (ODS) : This product does not contain nor is it manufactured with ozone depleting substances.

	<u>Product name</u>	<u>Concentration %</u>
SARA 313 Form R - Reporting requirements	: Ethylene glycol	34.65 - 57.564

	<u>Ingredient name</u>	<u>%</u>	<u>Section 304 CERCLA Hazardous Substance</u>	<u>CERCLA Reportable Quantity (Lbs)</u>	<u>Product Reportable Quantity (Lbs)</u>
CERCLA Hazardous substances	: Ethylene glycol	57.563946	Listed	5000	8686
	Sodium nitrite	0.6	Listed		

State regulations

PENNSYLVANIA - RTK : Ethylene glycol

California Prop 65 : This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

Canadian regulations

CEPA DSL : All components are listed or exempted.

WHMIS Classes : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 15. Regulatory information

Brazil Regulations

Classification system used : Norma ABNT-NBR 14725-2:2012

International lists

: **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: At least one component is not listed.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): At least one component is not listed.
Philippines inventory (PICCS): Not determined.
Taiwan inventory (CSNN): Not determined.

Section 16. Other information

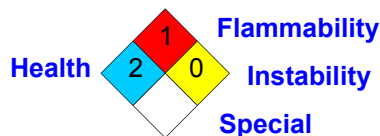
Hazardous Material Information System (U.S.A.) :

Health	*	2
Flammability		1
Physical hazards		0
Personal protection		

The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

National Fire Protection Association (U.S.A.) :



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

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Date of issue : 12/10/2013.
Date of previous issue : No previous validation.
Version : 1

▣ Indicates information that has changed from previously issued version.

Section 16. Other information

JEFFCOOL® is a registered trademark of Huntsman Corporation or an affiliate thereof in one or more countries, but not all countries.

[Notice to reader](#)

While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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