

JEFFCAT® ZF-54

Version	Revision Date:	SDS Number:	Date of last issue: 07/13/2016
2.0	11/15/2019	400001000659	Date of first issue: 02/09/2016

Print Date 03/27/2020

SECTION 1. IDENTIFICATION

Product name : JEFFCAT® ZF-54

Manufacturer or supplier's details

Company name of supplier : Huntsman International LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)
Telephone : TechInfo: (281) 719-7780
E-mail address of person responsible for the SDS : Global_Product_EHS_HPP@huntsman.com
Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Component of a Polyurethane System.

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with 29 CFR 1910.1200**

Flammable liquids	: Category 4
Acute toxicity (Oral)	: Category 4
Acute toxicity (Inhalation)	: Category 4
Acute toxicity (Dermal)	: Category 3
Skin corrosion	: Category 1B
Serious eye damage	: Category 1
Short-term (acute) aquatic hazard	: Category 3

GHS label elements

Hazard pictograms	:  
Signal word	: Danger
Hazard statements	: H227 Combustible liquid. H302 + H332 Harmful if swallowed or if inhaled. H311 Toxic in contact with skin.

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H314 Causes severe skin burns and eye damage.
H402 Harmful to aquatic life.

Precautionary statements

: **Prevention:**

P210 Keep away from heat/sparks/open flames/hot surfaces.
No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
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 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)	3033-62-3	30 - 50
formic acid	64-18-6	20 - 30

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

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SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Symptoms of poisoning may appear several hours later.
Treat symptomatically.
Get medical attention if symptoms occur.
- If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
- In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
Take victim immediately to hospital.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : None known.
- Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO₂)
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.

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- Hazardous combustion products : Carbon oxides
- Specific extinguishing methods : No data is available on the product itself.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.
Use a water spray to cool fully closed containers.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Refer to protective measures listed in sections 7 and 8.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material.
Keep away from open flames, hot surfaces and sources of ignition.
- Advice on safe handling : Do not breathe vapours/dust.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.
- Conditions for safe storage : Prevent unauthorized access.
No smoking.
Keep in a well-ventilated place.
Containers which are opened must be carefully resealed and kept

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upright to prevent leakage.
 Observe label precautions.
 Keep in properly labelled containers.

Materials to avoid : For incompatible materials please refer to Section 10 of this SDS.

Further information on storage stability : Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)	3033-62-3	TWA	0.05 ppm	ACGIH
		STEL	0.15 ppm	ACGIH
formic acid	64-18-6	TWA	5 ppm	ACGIH
		STEL	10 ppm	ACGIH
		TWA	5 ppm 9 mg/m ³	OSHA Z-1
		TWA	5 ppm 9 mg/m ³	NIOSH REL

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
 Tightly fitting safety goggles
 Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Impervious clothing
 Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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Hygiene measures : Avoid contact with skin, eyes and clothing.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: light yellow
Odour	: ammoniacal
Odour Threshold	: No data is available on the product itself.
pH	: 7.9 Concentration: 143 g/l
Freezing point	: No data is available on the product itself.
Melting point	: No data is available on the product itself.
Boiling point	: No data is available on the product itself.
Flash point	: 172 °F / 78 °C Method: closed cup
Evaporation rate	: No data is available on the product itself.
Flammability (solid, gas)	: No data is available on the product itself.
Flammability (liquids)	: No data is available on the product itself.
Upper explosion limit / Upper flammability limit	: No data is available on the product itself.
Lower explosion limit / Lower flammability limit	: No data is available on the product itself.
Vapour pressure	: No data is available on the product itself.
Relative vapour density	: No data is available on the product itself.
Relative density	: 1.06
Density	: No data is available on the product itself.
Solubility(ies)	
Water solubility	: soluble in cold water
Solubility in other solvents	: No data is available on the product itself.

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Partition coefficient: n-octanol/water : No data is available on the product itself.

Auto-ignition temperature : No data is available on the product itself.

Thermal decomposition : No data is available on the product itself.

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

Viscosity
Viscosity, kinematic : 66 mm²/s (77 °F / 25 °C)

Explosive properties : No data is available on the product itself.

Oxidizing properties : No data is available on the product itself.

Particle size : No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Vapours may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.

Incompatible materials : None known.

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicityAcute oral toxicity - Product : Acute toxicity estimate : 931.83 mg/kg
Method: Calculation methodAcute inhalation toxicity - Product : Acute toxicity estimate: 1.61 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation methodAcute dermal toxicity - Product : Acute toxicity estimate : 631.79 mg/kg
Method: Calculation method

Acute toxicity (other routes of exposure) : No data available

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administration)

Skin corrosion/irritation**Components:**

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Species: Rabbit

Method: OECD Test Guideline 404

Result: Causes burns.

formic acid:

Species: Other

Result: Extremely corrosive and destructive to tissue.

Serious eye damage/eye irritation**Components:**

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Species: Rabbit

Result: Risk of serious damage to eyes.

Method: OECD Test Guideline 405

formic acid:

Species: Rabbit

Result: Risk of serious damage to eyes.

Respiratory or skin sensitisation**Components:**

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Exposure routes: Skin

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Does not cause skin sensitisation.

formic acid:

Exposure routes: Skin

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Does not cause skin sensitisation.

Assessment: No data available

Germ cell mutagenicity**Components:**

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Genotoxicity in vitro

: Concentration: .08 - .18 mg/ml

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

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Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: Not classified due to inconclusive data.

Metabolic activation: negative
Method: OECD Test Guideline 482
Result: negative

formic acid:

Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Components:

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Genotoxicity in vivo

: Application Route: Intraperitoneal injection
Dose: 45 - 145 mg/kg
Method: OECD Test Guideline 474
Result: negative

formic acid:

Genotoxicity in vivo

: Method: OECD Test Guideline 477
Result: negative

Carcinogenicity

No data available

Carcinogenicity -
Assessment

: No data available

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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Reproductive toxicity**Components:**

formic acid:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
General Toxicity F1: No observed adverse effect level: 1,000 mg/kg body weight
Fertility: No observed adverse effect concentration Parent: 1,000 mg/kg body weight
Method: OECD Test Guideline 416
Result: negative

Components:

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Effects on foetal development : Species: Rabbit
Application Route: Dermal
General Toxicity Maternal: No observed adverse effect level: 2.5 mg/kg body weight
Embryo-foetal toxicity: No observed adverse effect level: 12 mg/kg body weight
Method: OECD Test Guideline 414
Result: Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses

Reproductive toxicity - Assessment : No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity**Components:**

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Species: Rat, male and female
NOEC: 8.2 mg/m³
Application Route: Inhalation
Test atmosphere: vapour
Exposure time: 336 h
Number of exposures: 6 h
Method: Subacute toxicity

formic acid:

Species: Rat, male and female
NOAEL: 0.244 mg/l
Application Route: Inhalation
Method: OECD Test Guideline 413
GLP: yes

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Repeated dose toxicity - : No data available
Assessment

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Components:

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Eye contact : Symptoms: Blurred vision

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:**

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): ca. 131.2 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203

formic acid:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): 130 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

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Method: OECD Test Guideline 203

LC50: 1,720 mg/l

Exposure time: 96 h

Test Type: semi-static test

Components:

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 102 mg/l
 Exposure time: 48 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 202

formic acid:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 540 mg/l
 Exposure time: 48 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 202

EC50 (Daphnia magna (Water flea)): 365 mg/l
 Exposure time: 48 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 202

Components:

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 24 mg/l
 Exposure time: 72 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 201

formic acid:

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 1,240 mg/l
 Exposure time: 72 h
 Analytical monitoring: yes
 Method: OECD Test Guideline 201
 GLP: yes

M-Factor (Acute aquatic toxicity) : No data available

Toxicity to fish (Chronic toxicity) : No data available

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

M-Factor (Chronic aquatic toxicity) : No data available

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Toxicity to microorganisms : No data available

Toxicity to soil dwelling organisms : No data available

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment
Acute aquatic toxicity : No data available**Components:**

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Persistence and degradability**Components:**

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Biodegradability : Inoculum: activated sludge
 Result: Inherently biodegradable.
 Biodegradation: < 10 %
 Exposure time: 28 d
 Method: OECD Test Guideline 302B

Inoculum: activated sludge
 Result: Not readily biodegradable.
 Biodegradation: 2 %
 Exposure time: 28 d
 Method: OECD Test Guideline 301F

formic acid:

Biodegradability : Result: Readily biodegradable.
 Biodegradation: > 60 %
 Exposure time: 28 d

Inoculum: Mixture
 Concentration: 30 mg/l
 Result: Readily biodegradable.
 Biodegradation: 100 %
 Exposure time: 28 d
 Method: OECD Test Guideline 301C

Inoculum: Mixture
 Concentration: 20 mg/l

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Result: Readily biodegradable.
 Biodegradation: 99 %
 Exposure time: 11 d
 Method: OECD Test Guideline 301E

Inoculum: Mixture
 Concentration: 10 mg/l
 Result: Readily biodegradable.
 Biodegradation: 95 %
 Exposure time: 20 d

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Stability in water : No data available

Photodegradation : No data available

Impact on Sewage Treatment : No data available

Bioaccumulative potential**Components:**

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Components:

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Partition coefficient: n-octanol/water : log Pow: -0.34 (68 °F / 20 °C)
 Method: Partition coefficient

formic acid:

Partition coefficient: n-octanol/water : log Pow: -0.54

Mobility in soil

Mobility : No data available

SAFETY DATA SHEET

HUNTSMAN

Enriching lives through innovation

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Distribution among environmental compartments : No data available

Stability in soil : No data available

Other adverse effects

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

Hazardous to the ozone layer

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information - Product : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.
Dispose of as hazardous waste in compliance with local and national regulations.
Dispose of contents/ container to an approved waste disposal plant.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

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SECTION 14. TRANSPORT INFORMATION**IATA**

UN/ID No.	: UN 2922
Proper shipping name	: Corrosive liquid, toxic, n.o.s. (BIS(DIMETHYLAMINOETHYL)ETHER, FORMIC ACID)
Class	: 8
Subsidiary risk	: 6.1
Packing group	: II
Labels	: Class 8 - Corrosive substances, Division 6.1 - Toxic substances
Packing instruction (cargo aircraft)	: 855
Packing instruction (passenger aircraft)	: 851

IMDG

UN number	: UN 2922
Proper shipping name	: CORROSIVE LIQUID, TOXIC, N.O.S. (BIS(DIMETHYLAMINOETHYL)ETHER, FORMIC ACID)
Class	: 8
Subsidiary risk	: 6.1
Packing group	: II
Labels	: 8 (6.1)
EmS Code	: F-A, S-B
Marine pollutant	: no

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

Not applicable for product as supplied.

National Regulations**DOT Classification**

UN/ID/NA number	: UN 2922
Proper shipping name	: CORROSIVE LIQUIDS, TOXIC, N.O.S. (BIS(DIMETHYLAMINOETHYL)ETHER, FORMIC ACID)
Class	: 8
Subsidiary risk	: 6.1
Packing group	: II
Labels	: Class 8 - Corrosive substances, Division 6.1 - Toxic substances
ERG Code	: 154
Marine pollutant	: no

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.

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

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
formic acid	64-18-6	5000	20202

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
 Acute toxicity (any route of exposure)
 Skin corrosion or irritation
 Serious eye damage or eye irritation

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

formic acid 64-18-6 >= 20 - < 30 %

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

California Prop. 65

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

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

CH INV : The formulation contains substances listed on the Swiss Inventory

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

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

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

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

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

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400001000659Date of last issue: 07/13/2016
Date of first issue: 02/09/2016

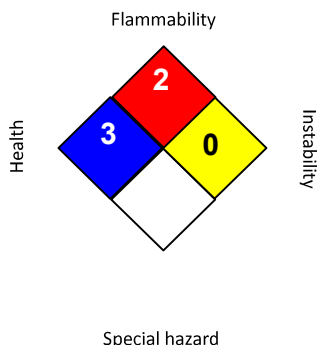
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TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

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

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

HEALTH		3
FLAMMABILITY		2
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

Revision Date : 11/15/2019

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
 NIOSH REL : USA. NIOSH Recommended Exposure Limits
 OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1
 Limits for Air Contaminants

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

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.

SAFETY DATA SHEET



Enriching lives through innovation

JEFFCAT® ZF-54

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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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