

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	07/08/2024	400001003989	01/03/2019
			Date of first issue: 01/03/2019

Print Date 02/10/2025

SECTION 1. IDENTIFICATION

Product name : JEFFCAT® Z-65P

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 : Global_Product_EHS_HPP@huntsman.com
Emergency telephone : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Catalyst
Restrictions on use : For industrial use only.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids : 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 : H226 Flammable liquid and vapor.
H314 Causes severe skin burns and eye damage.
H402 Harmful to aquatic life.

Precautionary Statements : **Prevention:**

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version
2.0

Revision Date:
07/08/2024

SDS Number:
400001003989

Date of last issue: 01/03/2019
Date of first issue: 01/03/2019

Print Date 02/10/2025

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.
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
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.
P363 Wash contaminated clothing 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

Chemical nature : Amines

Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
1,4-dimethylpiperazine	106-58-1	20 - 30
N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)	3033-62-3	5 - 10

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version 2.0	Revision Date: 07/08/2024	SDS Number: 400001003989	Date of last issue: 01/03/2019 Date of first issue: 01/03/2019
----------------	------------------------------	-----------------------------	---

Print Date 02/10/2025

1,4-diazabicyclooctane

280-57-9

5 - 10

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

SECTION 4. FIRST AID MEASURES

- | | |
|---|---|
| General advice | : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.
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.
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 | : Causes serious eye damage.
Causes severe burns. |
| Protection of first-aiders | : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
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. |

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue: 01/03/2019
2.0	07/08/2024	400001003989	Date of first issue: 01/03/2019

Print Date 02/10/2025

Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	: Water spray Alcohol-resistant foam Carbon dioxide (CO ₂) Dry chemical
Unsuitable extinguishing media	: Exercise caution when using a high volume water jet as it may scatter and spread fire
Specific hazards during firefighting	: Do not allow run-off from fire fighting to enter drains or water courses.
Specific extinguishing methods	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
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 fire-fighters	: 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. Remove all sources of ignition. Evacuate personnel to safe areas. Refer to protective measures listed in sections 7 and 8. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
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	: Neutralize with acid. 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).

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version 2.0 Revision Date: 07/08/2024 SDS Number: 400001003989 Date of last issue: 01/03/2019
Date of first issue: 01/03/2019

Print Date 02/10/2025

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.
- Advice on safe handling : Do not breathe vapors/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Open drum carefully as content may be under pressure. 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 : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Keep in properly labeled containers.
- Materials to avoid : Do not store near acids.
- Further information on storage stability : Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients 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

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

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version 2.0	Revision Date: 07/08/2024	SDS Number: 400001003989	Date of last issue: 01/03/2019 Date of first issue: 01/03/2019
----------------	------------------------------	-----------------------------	---

Print Date 02/10/2025

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 : 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.
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.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Color	: No data is available on the product itself.
Odor	: amine-like
Odor Threshold	: No data is available on the product itself.
pH	: 11.44
Melting point	: -63 °F / -53 °C
Boiling point	: No data is available on the product itself.
Flash point	: 104.9 °F / 40.5 °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.

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue: 01/03/2019
2.0	07/08/2024	400001003989	Date of first issue: 01/03/2019

Print Date 02/10/2025

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.
Vapor pressure	: No data is available on the product itself.
Relative vapor density	: No data is available on the product itself.
Relative density	: 0.96 (77 °F / 25 °C)
Density	: 0.96 g/cm3 (77 °F / 25 °C)
Solubility(ies)	
Water solubility	: No data is available on the product itself.
Solubility in other solvents	: No data is available on the product itself.
Partition coefficient: n-octanol/water	: No data is available on the product itself.
Autoignition temperature	: No data is available on the product itself.
Decomposition temperature	: No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT)	: No data is available on the product itself.
Viscosity	
Viscosity, kinematic	: 9 mm2/s (104 °F / 40 °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	: Vapors may form explosive mixture with air.
Conditions to avoid	: Heat, flames and sparks.

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	07/08/2024	400001003989	01/03/2019
			Date of first issue: 01/03/2019

Print Date 02/10/2025

Incompatible materials : None known.

Hazardous decomposition products : No decomposition if stored and applied as directed.

No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified due to lack of data.

Product:

Acute oral toxicity : Acute toxicity estimate: 2,428 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 184.44 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: 3,557 mg/kg
Method: Calculation method

Components:

1,4-dimethylpiperazine:

Acute oral toxicity : LD50 (Rat, male and female): 1,116.2 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rabbit, male and female): 3,000 mg/kg
Method: OECD Test Guideline 402

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

Acute oral toxicity : LD50 (Rat, male and female): 677 mg/kg
Method: OECD Test Guideline 401
GLP: yes
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat, male and female): 4 mg/l
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: no
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rabbit, male and female): 314 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The component/mixture is toxic after single contact with skin.

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	07/08/2024	400001003989	01/03/2019
			Date of first issue: 01/03/2019

Print Date 02/10/2025

1,4-diazabicyclooctane:

Acute oral toxicity	: LD50 (Rat, male): 700 mg/kg
Acute inhalation toxicity	: LC50 (Rat): > 20.2 mg/l Exposure time: 1 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	: LD50 (Rabbit, male and female): > 2,000 mg/kg Assessment: The substance or mixture has no acute dermal toxicity Remarks: No mortality observed at this dose.

Skin corrosion/irritation

Causes severe burns.

Components:

1,4-dimethylpiperazine:

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: Corrosive after 1 to 4 hours of exposure

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

Species	: Rabbit
Assessment	: Causes burns.
Method	: OECD Test Guideline 404
Result	: Causes burns.
GLP	: yes

1,4-diazabicyclooctane:

Species	: Rabbit
Assessment	: Irritant
Result	: Irritating to skin.

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

1,4-dimethylpiperazine:

Species	: Rabbit
Result	: Irreversible effects on the eye
Assessment	: Risk of serious damage to eyes.
Method	: OECD Test Guideline 405

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

Species	: Rabbit
Result	: Risk of serious damage to eyes.

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue: 01/03/2019
2.0	07/08/2024	400001003989	Date of first issue: 01/03/2019

Print Date 02/10/2025

Assessment	:	Risk of serious damage to eyes.
Method	:	OECD Test Guideline 405
GLP	:	yes

1,4-diazabicyclooctane:

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Assessment	:	Risk of serious damage to eyes.
Method	:	OECD Test Guideline 405

Respiratory or skin sensitisation

Skin sensitisation

Not classified due to lack of data.

Respiratory sensitisation

Not classified due to lack of data.

Components:

1,4-dimethylpiperazine:

Exposure routes	:	Skin
Species	:	Guinea pig
Assessment	:	Did not cause sensitisation on laboratory animals.
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.

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

Test Type	:	Buehler Test
Exposure routes	:	Skin
Species	:	Guinea pig
Assessment	:	Did not cause sensitisation on laboratory animals.
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.
GLP	:	yes

1,4-diazabicyclooctane:

Exposure routes	:	Skin
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitisation.

Germ cell mutagenicity

Not classified due to lack of data.

Components:

1,4-dimethylpiperazine:

Genotoxicity in vitro	:	Test Type: reverse mutation assay
		Test system: Salmonella tryphimurium and E. coli
		Metabolic activation: with and without metabolic activation
		Method: OECD Test Guideline 471
		Result: negative

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	07/08/2024	400001003989	01/03/2019
			Date of first issue: 01/03/2019

Print Date 02/10/2025

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Micronucleus test
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: negative

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

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: Not classified due to inconclusive data.

Test Type: unscheduled DNA synthesis assay
Test system: rat hepatocytes
Metabolic activation: negative
Method: OECD Test Guideline 482
Result: negative

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Dose: 45 - 145 mg/kg
Method: OECD Test Guideline 474
Result: negative
GLP: yes

1,4-diazabicyclooctane:

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

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	07/08/2024	400001003989	01/03/2019
			Date of first issue: 01/03/2019

Print Date 02/10/2025

Genotoxicity in vivo : Application Route: Oral
Dose: 0 - 900 mg/kg
Result: negative

Carcinogenicity

Not classified due to lack of data.

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

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 ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified due to lack of data.

Components:

1,4-dimethylpiperazine:

Effects on fertility : Test Type: Reproduction / Developmental Toxicity Screening Test
Species: Rat, male and female
Application Route: Oral
Dose: 0/125/250/500 mg/kg bw/day
General Toxicity Parent: NOEL: 500 mg/kg body weight
General Toxicity F1: NOEL: 500 mg/kg body weight
Method: OECD Test Guideline 421
Result: negative

Effects on fetal development : Test Type: Pre-natal
Species: Rat, female
Dose: 200/400/800 mg/kg bw/d
Duration of Single Treatment: 14 d
General Toxicity Maternal: NOEL: 400 mg/kg body weight
Teratogenicity: NOEL: 800 mg/kg body weight
Developmental Toxicity: NOEL: 400 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

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

Effects on fetal development : Test Type: Pre-natal
Species: Rabbit
Application Route: Dermal
Dose: 0, 1, 5 and 10 %
Duration of Single Treatment: 13 d
General Toxicity Maternal: NOEL: 12 mg/kg body weight
Method: OECD Test Guideline 414
GLP: no

1,4-diazabicyclooctane:

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	07/08/2024	400001003989	01/03/2019
			Date of first issue: 01/03/2019

Print Date 02/10/2025

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Dose: 100 milligram per kilogram
Frequency of Treatment: 7 days/week
Method: OECD Test Guideline 422
Result: negative

Effects on fetal development : Species: Rat, female
Application Route: Oral
Result: No teratogenic effects

Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: NOAEL: 300 mg/kg body weight
Method: OECD Test Guideline 422
Result: No teratogenic effects

STOT-single exposure

Not classified due to lack of data.

STOT-repeated exposure

Not classified due to lack of data.

Repeated dose toxicity

Components:

1,4-dimethylpiperazine:

Species : Rat, male and female
NOAEL : ≥ 600 mg/kg
Application Route : oral (gavage)
Exposure time : 28 days
Number of exposures : 7 days/week
Dose : 0/150/300/600 mg/kg bw/d
Method : Subacute toxicity

Species : Rat, male and female
NOAEL : 350 mg/kg
Application Route : oral (gavage)
Exposure time : 90 days
Number of exposures : 7 days/week
Dose : 75 to 850 mg/kg bw/day
Method : OECD Test Guideline 408

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

Species : Rat, male and female
NOEC : 8.2 mg/m³
Application Route : Inhalation
Test atmosphere : vapor
Exposure time : 14 weeks 6 h
Number of exposures : 5 days/week
Dose : 1.51/8.2/38 mg/m³
Method : OECD Test Guideline 413
GLP : yes

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue: 01/03/2019
2.0	07/08/2024	400001003989	Date of first issue: 01/03/2019

Print Date 02/10/2025

Species	: Rabbit, male and female
NOAEL	: 8 mg/kg
Application Route	: Dermal
Exposure time	: 90 days 6 h
Number of exposures	: 5 days/week
Method	: OECD Test Guideline 411
GLP	: yes

1,4-diazabicyclooctane:

Species	: Rat, male and female
LOEC	: 60 mg/m3
Application Route	: Ingestion
Test atmosphere	: dust/mist
Exposure time	: 696 h
Number of exposures	: 7 d
Method	: OECD Test Guideline 412

Aspiration toxicity

Not classified due to lack of data.

Experience with human exposure

Components:

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

Eye contact	: Symptoms: Blurred vision
-------------	----------------------------

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Product:

Remarks	: Solvents may degrease the skin.
---------	-----------------------------------

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

1,4-dimethylpiperazine:

Toxicity to fish	: LC50 (Brachydanio rerio (zebrafish)): 94.6 mg/l
	Exposure time: 96 h
	Test Type: static test
	Test substance: Fresh water
	Method: OECD Test Guideline 203

Toxicity to daphnia and other	: EC50 (Daphnia magna (Water flea)): > 100 mg/l
-------------------------------	---

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	07/08/2024	400001003989	01/03/2019
			Date of first issue: 01/03/2019

Print Date 02/10/2025

aquatic invertebrates	:	Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: Directive 67/548/EEC, Annex V, C.2.
Toxicity to algae/aquatic plants	:	ErC50 (Selenastrum capricornutum (green algae)): > 100 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes NOECr (Selenastrum capricornutum (green algae)): 100 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 10 mg/l Exposure time: 28 d Test Type: flow-through test Method: OECD Test Guideline 210
Toxicity to microorganisms	:	EC50 (Pseudomonas putida): > 1,380 mg/l Exposure time: 16 h Test Type: static test Test substance: Fresh water Method: DIN 38 412 Part 8 EC10 (Pseudomonas putida): 651 mg/l Exposure time: 16 h Test Type: static test Test substance: Fresh water Method: DIN 38 412 Part 8

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

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): ca. 131.2 mg/l End point: mortality Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 102 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 202 GLP: yes

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	07/08/2024	400001003989	01/03/2019
			Date of first issue: 01/03/2019

Print Date 02/10/2025

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 23 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

NOECr (Selenastrum capricornutum (green algae)): 1.83 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : EC20 (activated sludge): > 720 mg/l
Exposure time: 0.5 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209
GLP: no

Ecotoxicology Assessment

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

1,4-diazabicyclooctane:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): > 100 mg/l
Exposure time: 96 h
Test substance: Fresh water
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 180 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 92 mg/l
Exposure time: 48 hrs
Test Type: static test
Method: OECD Test Guideline 202

Persistence and degradability

Components:

1,4-dimethylpiperazine:

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	07/08/2024	400001003989	01/03/2019
			Date of first issue: 01/03/2019

Print Date 02/10/2025

Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 100 mg/l
Dissolved organic carbon (DOC)
Result: Not readily biodegradable.
Biodegradation: 5.6 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

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

Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 400 mg/l
Dissolved organic carbon (DOC)
Result: Not biodegradable
Biodegradation: < 10 %
Exposure time: 28 d
Method: OECD Test Guideline 302B
GLP: no

aerobic
Inoculum: activated sludge
Concentration: 100 mg/l
Theoretical oxygen demand
Result: Not readily biodegradable.
Biodegradation: 2 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: no

1,4-diazabicyclooctane:

Biodegradability : Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 7 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: ca. 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

Photodegradation : Rate constant: < .00001

Bioaccumulative potential

Components:

1,4-dimethylpiperazine:

Partition coefficient: n-octanol/water : log Pow: -0.26 (68 °F / 20 °C)
pH: 8 - 8.3
Method: Partition coefficient

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	07/08/2024	400001003989	01/03/2019
			Date of first issue: 01/03/2019

Print Date 02/10/2025

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

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: -0.34 (68 °F / 20 °C)
pH: 5 - 9
Method: Partition coefficient
GLP: yes

log Pow: -0.54

1,4-diazabicyclooctane:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): < 13
Exposure time: 42 d
Test substance: Fresh water
Remarks: Bioaccumulation is unlikely.

Bioconcentration factor (BCF): 3.16

Partition coefficient: n-octanol/water : log Pow: -0.49

Mobility in soil

Components:

1,4-dimethylpiperazine:

Distribution among environmental compartments : Koc: 49

Other adverse effects

Product:

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 : An environmental hazard cannot be excluded in the event of
unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

Components:

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

Results of PBT and vPvB assessment : Substance is not persistent, bioaccumulative, and toxic (PBT).

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	07/08/2024	400001003989	01/03/2019
			Date of first issue: 01/03/2019

Print Date 02/10/2025

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

- Waste from residues : Dispose of contents and container in accordance with all local, regional, national and international regulations.
Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
- 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.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

- UN number : UN 2734
- Proper shipping name : AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.
(BIS(DIMETHYLAMINOETHYL)ETHER, N,N'-DIMETHYLPIPERAZINE)
- Class : 8
- Subsidiary risk : 3
- Packing group : II
- Labels : 8 (3)
- Environmentally hazardous : no

IATA-DGR

- UN/ID No. : UN 2734
- Proper shipping name : Amines, liquid, corrosive, flammable, n.o.s.
(BIS(DIMETHYLAMINOETHYL)ETHER, N,N'-DIMETHYLPIPERAZINE)
- Class : 8
- Subsidiary risk : 3
- Packing group : II
- Labels : Corrosive, Flammable Liquids
- Packing instruction (cargo aircraft) : 855
- Packing instruction (passenger aircraft) : 851

IMDG-Code

- UN number : UN 2734
- Proper shipping name : AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.
(BIS(DIMETHYLAMINOETHYL)ETHER, N,N'-DIMETHYLPIPERAZINE)
- Class : 8
- Subsidiary risk : 3
- Packing group : II
- Labels : 8 (3)
- EmS Code : F-E, S-C

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue:
2.0	07/08/2024	400001003989	01/03/2019
			Date of first issue: 01/03/2019

Print Date 02/10/2025

Marine pollutant : no

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 2734
Proper shipping name	: Amine, liquid, corrosive, flammable, n.o.s. (BIS(DIMETHYLAMINOETHYL)ETHER, N,N'- DIMETHYLPIPERAZINE)
Class	: 8
Subsidiary risk	: 3
Packing group	: II
Labels	: CORROSIVE, FLAMMABLE LIQUID
ERG Code	: 132
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.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Skin corrosion or irritation
Serious eye damage or eye irritation

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.

This product does not contain any hazardous air pollutants (HAP) $\geq 0.1\%$, as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

California Prop. 65

WARNING: This product can expose you to chemicals including Propylene Oxide, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

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

DSL	: All components of this product are on the Canadian DSL
AIIC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version
2.0

Revision Date:
07/08/2024

SDS Number:
400001003989

Date of last issue: 01/03/2019
Date of first issue: 01/03/2019

Print Date 02/10/2025

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

Inventories

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

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

No substances are subject to a Significant New Use Rule.

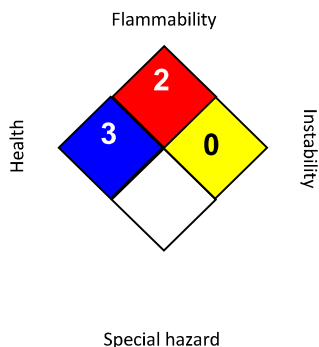
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

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 : 07/08/2024

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard

HUNTSMAN

Enriching lives through innovation

JEFFCAT® Z-65P

Version	Revision Date:	SDS Number:	Date of last issue: 01/03/2019
2.0	07/08/2024	400001003989	Date of first issue: 01/03/2019

Print Date 02/10/2025

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.

The trademarks above are the property of Huntsman Corporation or an affiliate thereof.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.