



Safety Data Sheet

Date of Issue: 19.06.2020

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1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Company Name: ECP Limited
Address: PO Box 34125, Birkenhead, Auckland 0746
Telephone: +64 9 480 4386
Facsimile: +64 9 480 4385
Emergency phone number: 0800 243 622 (24 hours)

Manufacturer: Avantor Performance Materials
Gen. Sowińskiego 11, 44-121 Gliwice, Poland

Product	Tetrahydrofuran HPLC		Code	9441.2500
CAS#	HSNO#	UN #	DG Class/es	Packing group #
109-99-9	HSR001224	2056	3	II

Trading Name: Tetrahydrofuran BAKER ANALYZED® HPLC for HPLC/UHPLC, for spectrophotometry, J.T. Baker®

Recommended use: Laboratory Investigations

2. Hazards identification

New Zealand hazards classification: 3.1B, 6.1D (All), 6.1D (O), 6.3A, 6.4A, 6.7B, 6.9B (All), 6.9B (I), 9.3C.

2.1 GHS Classification

Flammable Liquids (Category B)
Acute toxicity, Oral (Category D)
Eye irritation (Category A)
Carcinogenicity (Category B)

2.2 GHS Label elements, including precautionary statements

Hazard Pictograms



Signal word **Danger**

Hazard statement(s)

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H351 Suspected of causing cancer.

Precautionary statement(s)

Prevention

P202	Do not handle until all safety precautions have been read and understood.
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.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301 + P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P330	Rinse mouth.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage

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

Disposal

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

In use may form flammable/explosive vapour-air mixture. May form explosive peroxides.

3. Composition/information on ingredients

Substance/mixture : substance

3.1 Substances

Synonyms	: THF
Formula	: C ₄ H ₈ O
Molecular weight	: 72.11 g/mol
CAS No	: 109-99-9

Hazardous components:

Component	Classification	Concentration
Tetrahydrofuran	3.1 B; 6.1 D; 6.4 A; 6.7 B; H225, H302, H319, H351	<=100%

4. First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Dry powder, dry sand

Unsuitable extinguishing media

Do NOT use water jet.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 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.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.

7.2 Conditions for safe storage, including any incompatibilities

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. Dry residue is explosive. Store under inert gas. Test for peroxide formation periodically and before distillation.

8. Exposure controls/personal protection

8.1 Control parameters

Component	CAS No.	Value	Control parameters	Basis
Tetrahydrofuran	109-99-9	WES-TWA	100 ppm 295 mg/m ³	New Zealand. Workplace Exposure Standards for Atmospheric Contaminants
	Remarks	Skin absorption		

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards.

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type or respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards.

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	
Form:	liquid, clear
Colour:	colourless
b) Odour	Ether-like
c) pH	ca.7
d) Melting point/freezing point	Melting point: -108.44 °C at 1,013.25 hPa - (ECHA)
e) Initial boiling point and boiling range	65 °C at 1,013 hPa
f) Flash point	-21.2 °C - closed cup
g) Upper/lower flammability or explosive limits	
Upper explosion limit:	11.8 %(V) - (THF)
Lower explosion limit:	1.8 %(V) - (THF)
h) Vapour pressure	170 hPa at 20.0 °C
i) Vapour density	ca.2.5 at 25 °C - (Air = 1.0)
j) Relative density	0.88 g/cm ³ at 25 °C
k) Water solubility	Miscible
l) Partition coefficient:	n-octanol/water
log Pow: 0.45 at 25 °C -	Bioaccumulation is not expected.
m) Auto-ignition temperature	215 °C at 1,013 hPa
n) Viscosity	0.518 mm ² /s at 25 °C -
o) Explosive properties	In use may form flammable/explosive vapour-air mixture.

10. Stability and reactivity

10.1 Chemical stability

Stable under recommended storage conditions.

Contains the following stabiliser(s):

2,6-di-tert-Butyl-p-cresol (250 ppm)

10.2 Conditions to avoid

Heat, flames and sparks.

10.3 Incompatible materials

Strong oxidizing agents, acids

10.4 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions:

Carbon oxides

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - 1,650 mg/kg

LC50 Inhalation - Rat - male and female - 4 h - > 16.9 mg/l

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 72 h

Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Eye irritation

Respiratory or skin sensitisation

Local lymph node assay (LLNA) - Mouse

Result: negative

Germ cell mutagenicity

In vivo tests did not show mutagenic effects

In vitro mammalian cell gene mutation test

Chinese hamster ovary cells

Result: negative

Ames test

Salmonella typhimurium

Result: negative

Carcinogenicity

Suspected of causing cancer.

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.

Reproductive toxicity

No toxicity to reproduction

Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation. - Respiratory system

Acute oral toxicity - Irritation of mucous membranes

Acute inhalation toxicity - mucosal irritations, cough, shortness of breath, possible damage of respiratory tract.

Specific target organ toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

No aspiration toxicity classification

Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 28 d

RTECS: LU5950000

12. Ecological information

12.1 Toxicity

Toxicity to fish flow-through test

LC50 - Pimephales promelas (fathead minnow)

2,160 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates

static test EC50 - Daphnia magna (Water flea) - 3,485 mg/l - 48 h

Toxicity to bacteria

static test EC20 - activated sludge - ca. 800 mg/l - 0.5 h

static test IC50 - activated sludge - 460 mg/l - 3 h

12.2 Persistence and degradability

Biodegradability aerobic

Biochemical oxygen demand - Exposure time 28 d

Result: 39 % - Not readily biodegradable.

12.3 Bioaccumulative potential

No bioaccumulation is to be expected ($\log Pow \leq 4$).

13. Disposal considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.

Contaminated packaging

Dispose of as unused product.

14. Transport Information Table

		ADR/RID – European packaging certification	IMDG International Maritime Dangerous Goods Code	IATA – DGR International Air Travel Association – Dangerous Goods Regulations
14.1	UN Number	2056	2056	2056
14.2	UN Proper Shipping name	Tetrahydrofuran, solution	Tetrahydrofuran, solution	Tetrahydrofuran, solution
14.3	Transport Hazard Class	3	3	3
14.4	Packaging group	II	II	II
14.5	Environmental Hazards	No	No	No
14.6	Special precautions for user	None		

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulatory information

HSNO Approval Code: HSR001224

HSNO Group Standard Approval: HSR002596 - Laboratory Chemicals and Reagent Kits Group Standard 2006

Tracking Required: not required

Approved Handler Cert.: not required

16. Disclaimer

The information above is believed to be accurate and represents the best information currently available to us. However, the information is not a guarantee expressed or implied, with respect to such information, and we assume no liability resulting from its use. Anyone using the chemical described here should ensure that he or she has the appropriate training and has the expertise and any equipment required for safe handling. If clarification or further information is required, please contact ECP Ltd or refer to the official handler of dangerous goods within your own company. The user should also make their own investigations to determine the suitability of the product for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

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