

Product Name: Tetrahydrofuran Stream
Issued: Dec-18-2012

SAFETY DATA SHEET

Section 1. Identification of the substance/mixture and of the company/undertaking

1.1 Product Identifier

Product Name: Tetrahydrofuran Stream
Synonyms: Tetrahydrofuran and Water stream; Tetrahydrofuran Cephalon stream

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

Recommended use: Industrial use
Laboratory chemicals
Scientific research and development

1.3 Details of the supplier of the safety data sheet

Supplier: AbbVie Inc.
1 North Waukegan Road
North Chicago, IL 60064
USA
1-800-255-5162
+1-847-937-7433
Customer Service Telephone: 1-800-255-5162 (US and Canada only)
+1-847-937-7433
E-mail Address: AbbVie.SDS@abbvie.com

1.4 Emergency telephone number

Emergency Telephone: CHEMTREC: 1(800) 424-9300 (in USA and Canada)
or +1-703-527-3887 (international)

Section 2. Hazards identification

2.1 Classification of the substance or mixture

Regulation (EC) No 1272/2008

Serious eye damage/eye irritation Category 2

Specific target organ systemic Category 3

toxicity (single exposure)

Flammable liquids Category 2

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Indication of danger: F - Highly flammable

Xi - Irritant

Risk Phrases: R11 - Highly flammable
R19 - May form explosive peroxides
R36/37 - Irritating to eyes and respiratory system

2.2 Label elements

Product Name: Tetrahydrofuran Stream
Issued: Dec-18-2012

Section 2. Hazards identification



Signal Word: Danger

Hazard Statements:
H225 - Highly flammable liquid and vapor
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
EUH019 - May form explosive peroxides

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P403 + P235 - Store in a well-ventilated place. Keep cool

2.3 Other hazards

Not determined

Section 3. Composition/information on ingredients

Chemical Name	Percent	EINECS/ELINCS Number	EEC Classification	EU - GHS Substance Classification	REACH No.
Tetrahydrofuran 109-99-9	95	203-726-8	F; R11-19 Xi; R36/37	Flam. Liq. 2 (H225) Eye Irrit. 2 (H319) STOT SE 3 (H335)	No data available
Water 7732-18-5	5	231-791-2		Not Hazardous*	No data available

Not Hazardous* - Based on available data, not classified as hazardous according to the criteria of the Globally Harmonized System.

For the full text of the R-phrases mentioned in this Section, see Section 16
For the full text of the H-Statements mentioned in this Section, see Section 16

Section 4. First aid measures

4.1 Description of first aid measures

Product Name: Tetrahydrofuran Stream
Issued: Dec-18-2012

Eye Contact: Remove from source of exposure. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

Skin Contact: Remove from source of exposure. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

Inhalation: Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

Ingestion: Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

Protection of First-aiders: Use personal protective equipment

4.2 Most important symptoms and effects, both acute and delayed

Signs and Symptoms: Inhalation exposure may result in the following : respiratory irritation, eye irritation, skin irritation, headaches, incoordination, drowsiness, dizziness.

Medical Conditions Aggravated by Exposure: Data suggest any pre-existing ailments in the following organs: eyes, kidney, liver, cardiovascular system, respiratory system, skin.

4.3 Indication of any immediate medical attention and special treatment needed

Notes To Physician: Treat symptomatically

Section 5. Firefighting measures

5.1 Extinguishing Media

Suitable Extinguishing Media: Water spray, dry chemical, carbon dioxide (CO₂), or foam

Unsuitable Extinguishing Media: Not determined

5.2 Special hazards arising from the substance or mixture

Special Exposure Hazards: Not determined

5.3 Advice for firefighters

Protective Equipment and Precautions for Firefighters: As in any fire, wear self-contained breathing apparatus and full protective gear

Section 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal Precautions: For personal protection see section 8

6.2. Environmental precautions

Environmental Precautions: Contain material and prevent release to waterways or soil.

6.3. Methods and material for containment and cleaning up

Product Name: Tetrahydrofuran Stream
Issued: Dec-18-2012

Methods for Cleaning Up: Keep away from ignition sources. Recover product and place in an appropriate container for disposal.

6.4. Reference to other sections

Refer to Sections 8, 12, and 13 for further information.

Section 7. Handling and storage

7.1. Precautions for safe handling

Bond and ground containers during transfer operations.. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Store in tight, light-resistant containers.. Store under nitrogen..

7.3. Specific end use(s)

Recommended use: Industrial use
Laboratory chemicals
Scientific research and development

Section 8. Exposure controls/personal protection

8.1. Control parameters

Exposure limits:

Chemical Name	Employee Exposure Limit	Skin Notation
Tetrahydrofuran 109-99-9	Not Applicable	None
Water 7732-18-5	Not Applicable	None

Chemical Name	ACGIH TLV	France	German MAK	Ireland	Italy
Tetrahydrofuran 109-99-9	50 ppm TWA 100 ppm STEL	STEL: 300 mg/m ³ TWA: 150 mg/m ³	100 ppm Peak 300 mg/m ³ Peak 150 mg/m ³ MAK 50 ppm MAK	100 ppm (STEL) 300 mg/m ³ (STEL) 100 ppm (STEL) 50 ppm (TWA) 150 mg/m ³ (TWA)	300 mg/m ³ (STEL) 150 mg/m ³ (TWA)

Chemical Name	The Netherlands	Spain	Switzerland	UK OEL/MEL
Tetrahydrofuran 109-99-9	600 mg/m ³ (STEL) 300 mg/m ³ (TWA)	300 mg/m ³ (STEL) 150 mg/m ³ (TWA)	150 mg/m ³ (TWA) 300 mg/m ³ (STEL)	100 ppm (STEL) 300 mg/m ³ (STEL) 100 ppm (STEL) 50 ppm (TWA) 150 mg/m ³ (TWA)

8.2. Exposure controls

Engineering Controls: Local exhaust ventilation as necessary to maintain exposures to within applicable limits.

Product Name: Tetrahydrofuran Stream
Issued: Dec-18-2012

Respiratory Protection: An approved respirator (i.e. NIOSH, EN, etc.) should be worn when exposures are expected to exceed the applicable limits.

Eyes: Wear eye protection appropriate to handling activities.

Gloves: Impervious gloves. Polyvinyl Alcohol or 4H (Silver Shield).

Other PPE Data: Wear appropriate body coverings if contact may occur.

Environmental Exposure Controls: Not determined

Section 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance: Clear Liquid
Odor: Sweet fruity odor.
Odor Threshold: Not determined
pH: Not determined.
Boiling Pt. @ 760 mm Hg (°C): 67 (Tetrahydrofuran)
Melting/Freezing Point (°C): -108 (Tetrahydrofuran)
Flash Point (°C): -14 (Tetrahydrofuran)
Flash Point Method: Tag Closed Cup (TCC)
Evaporation Rate at 20°C: Not determined.
Flammability (Solid): Class Ib.
Lower Explosive Limit: 2 (Tetrahydrofuran)
Upper Explosive Limit: 11.8 (Tetrahydrofuran)
Vapor Pressure (mm Hg): 145 at 20 deg. C for major ingredient
Vapor Density (Air = 1): Not determined.
Specific Gravity: 0.889 (Tetrahydrofuran)
Solubility(ies): Soluble in: water (11.2 grams/l)
Partition coefficient: n-octanol/water Not determined.
Autoignition Temp. (°C): 321 (Tetrahydrofuran)
Decomposition temperature (°C): Not determined.
Viscosity (centipoise): Not determined.
Explosion Severity: Not determined.
Oxidizer Properties: Not determined.

9.2. Other information

Not determined

Section 10. Stability and reactivity

10.1. Reactivity

Not determined

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

Product Name: Tetrahydrofuran Stream
Issued: Dec-18-2012

Hazardous reactions: May form peroxides during storage.

10.4. Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition Do not expose to air as this will accelerate peroxide formation.

10.5 Incompatible materials

Strong bases, Oxidizing agents

10.6 Hazardous decomposition products

Carbon oxides, Nitrogen oxides (NOx)

Section 11. Toxicological information

11.1. Information on toxicological effects

Routes of Exposure:

Oral: Unlikely
Dermal: Yes
Inhalation: Yes

Acute Toxicity - Oral: Data for component (s) given below.

Chemical Name	Acute Test	Value	Units	Species
Tetrahydrofuran 109-99-9	LD50 =	1900-2900	mg/kg	Animals

Acute Toxicity - Dermal: Not determined.

Acute Toxicity - Inhalation: Data for component (s) given below.

Chemical Name	Test	Value	Units	Species
Tetrahydrofuran 109-99-9	LC 50 =	18,000-22,000	ppm	Rats

Corrosivity: Not determined.

Dermal Irritation: Not determined.

Eye Irritation: Reported to produce eye irritation in animals and humans.

Sensitization: Not determined.

Toxicokinetics/Metabolism: Not determined.

Target Organ Effects: Major Ingredient : May cause respiratory tract irritation
Data for component (s) given below.

Chemical Name	Target Organs:	Species	Dosage	Units	Route	Duration
Tetrahydrofuran 109-99-9	Respiratory System Kidney Liver Cardiovascular System	Dogs Rats	200-3000	ppm	Inhalation	Variable exposure periods

Product Name: Tetrahydrofuran Stream
Issued: Dec-18-2012

Reproductive Effects: Data for component (s) given below.

Chemical Name	Species	Dosage	Units	Route	Duration
Tetrahydrofuran 109-99-9	Rats Mice	600-1800	ppm	Inhalation	During Gestation

Carcinogenicity: Not determined.

Mutagenicity: Data for component (s) given below.

Chemical Name	Micronucleus Assay	Ames Test:	Mouse Lymphoma Assay	Chromosomal Abbr. Assay
Tetrahydrofuran 109-99-9	No Data.	Negative	No Data.	No Data.

Aspiration hazard: Not determined

Notes:

1. ALD: Approximate lethal dosage
2. LC50: Concentration in air that produces 50% mortality
3. LD50: Oral or dermal dosage that produces 50% mortality

Section 12. Ecological information

12.1. Toxicity

Not determined.

12.2. Persistence and degradability

Not determined.

12.3. Bioaccumulative potential

Not determined

12.4. Mobility in soil

Not determined.

12.5. Results of PBT or vPvB assessment

Chemical safety report is not required for this substance/product.

12.6. Other adverse effects

Do not allow undiluted material or large quantities to reach groundwater, bodies of water or sewer system.

Notes:

1. EC50: Concentration in water that produces 50% mortality in *Daphnia* sp.
2. LC50: Concentration in water that produces 50% mortality in fish.
3. EbC50/ErC50: Concentration in water that produces 50% inhibition of growth and in algae.

Section 13. Disposal considerations

13.1 Waste treatment methods

Product Name: Tetrahydrofuran Stream
Issued: Dec-18-2012

Waste Disposal Methods: Disposal should be made in accordance with country, federal, state and local regulations.

Section 14. Transport information

ADR, DOT, ICAO/IATA, IMDG/IMO

Status: Regulated

14.1. UN Number: UN2056
14.2. Proper shipping name: Tetrahydrofuran solution
14.3. Hazard class: 3
14.4. Packing group: II
14.5. Environmental hazard: Not applicable
14.6. Special Provisions: Not applicable
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

Section 15. Regulatory Information

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

International Inventories

Chemical Name	EINECS/ ELINCS	TSCA	DSL	NDSL	PICCS
Tetrahydrofuran 109-99-9	203-726-8	X	X	Not listed.	X
Water 7732-18-5	231-791-2	X	X	Not listed.	X

Chemical Name	ENCS	ISHL	IECSC	AICS	KECL	New Zealand
Tetrahydrofuran 109-99-9	(5)-53 (5)-3335 (5)-53	-	X	X	KE-33454	HSR001224
Water 7732-18-5	-	2-(4)-1220	X	X	KE-35400	

Legend

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

PICCS - Philippines Inventory of Chemicals and Chemical Substances

ENCS - Japan Existing and New Chemical Substances

ISHL - Japan Industrial Safety and Health Law

IECSC - China Inventory of Existing Chemical Substances

AICS - Australian Inventory of Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

Carcinogenicity Rating:

Chemical Name	Percent	NTP:	IARC:	ACGIH:
Tetrahydrofuran	95	Listed	Not Listed	Not Listed
Water	5	Not Listed	Not Listed	Not Listed

Product Name: Tetrahydrofuran Stream
Issued: Dec-18-2012

SARA 313 Information

Chemical Name	Percent	SARA 313 Chemical:	CERCLA RQ/SARA EHS RQ (lbs):	SARA EHS TPQ (lbs):
Tetrahydrofuran	95	No	1000 lb 454 kg	Not applicable
Water	5	No	Not Applicable	Not applicable

Immediate Health: Yes
Delayed Health: No
Fire: Yes
Sudden Pressure: No
Reactivity: No

RCRA Status: Regulated as a hazardous waste (D001).

Proposition 65 Status: Does not contain chemicals known to the state of California to cause cancer or reproductive harm.

WHMIS Hazard Class: Not determined.

NFPA Rating:
Health: 2
Fire: 3
Reactivity: 0

Notes:

1. SARA = Superfund Amendments and the Reauthorization Act.
2. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act.
3. FIFRA = Federal Insecticide, Fungicide and Rodenticide Act.
4. TSCA = Toxic Substances Control Act.
5. EC = European Community.
6. WHMIS = Canadian Workplace Hazardous Materials Information System.
7. UN GHS = United Nations Globally Harmonized System for Hazard Identification.

15.2. Chemical safety assessment

Chemical safety assessment has not been conducted on the substance/product.

Section 16. Other information

Risk Phrases: R11 - Highly flammable, R19 - May form explosive peroxides, R36/37 - Irritating to eyes and respiratory system

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Supersedes the SDS dated: Aug-02-2000

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