

SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier used on the label

: **Flottec F130-06 Frother**

Recommended use of the chemical and restrictions on use

: Flotation chemical used in mining industry.

Chemical family

: Alcohol based frother

Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party:

Flottec, LLC

2505 Collingsworth Street, 2nd Floor

Houston, Texas 77026 U.S.A.

www.flottec.com

Information Telephone # : 1.713.425.7055

24 Hr. Emergency Tel # : Chemtrec 1.800.424.9300 (Within Continental U.S.); Chemtrec 1.703.527.3887 (Outside U.S.)

2. HAZARDS IDENTIFICATION

Classification of the chemical

Flammable liquids (Category 3)

Acute toxicity, inhalation (Category 4)

Skin corrosion/irritation (Category 2)

Serious eye damage/eye irritation (Category 2A)

Specific target organ toxicity, single exposure, Respiratory tract irritation (Category 3)

Label elements

Signal Word

Danger

Hazard statement(s)

H226: Flammable liquid and vapor

H332: Harmful if inhaled

H319: Causes serious eye irritation

H315: Causes skin irritation

H335: May cause respiratory irritation

H303 + H313: May be harmful if swallowed or in contact with skin

Precautionary statement(s)

P210: Keep away from heat, sparks, open flames and hot surfaces. No smoking.

P240: Ground or bond container and receiving equipment.

P242: Use only non-sparking tools.

P243: Take precautionary measures against static discharge.

P261: Avoid breathing vapors, mist and spray.

P264: Wash face, hands and any exposed skin thoroughly after handling.

P271: Use only outdoors or in a well-ventilated area.

P280: Wear protective gloves, protective clothing and eye protection.

P303+361+353: IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water and soap or take a shower if necessary.

P332+313: If skin irritation occurs: Get medical advice or attention.

P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

P337+313: If eye irritation persists: Get medical advice or attention.

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

P362+364: Take off contaminated clothing and wash before reuse.

P370+378: In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide for extinction.
P403+P235+P233: Store in a well-ventilated place. Keep container tightly closed. Keep cool.
P405: Store locked up.
P501: Dispose of contents and container to a licensed chemical disposal agency in accordance with local, regional and national regulations.

Hazard pictogram(s)



Other hazards

Acute toxicity, dermal (Category 5)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Common name	CAS #	Concentration / wt %
Isoamyl alcohol	123-51-3	98 – 100

The exact concentrations of the above listed chemicals are being withheld as a trade secret.

4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : DO NOT induce vomiting, unless recommended by medical personnel. If victim is conscious wash out mouth with water and give 1-2 glasses of water to drink. Never give anything by mouth if victim is unconscious or convulsing. If spontaneous vomiting occurs, keep head below hips level to prevent aspiration into the lungs. Seek medical attention or contact a Poison Centre immediately.
- Inhalation* : Move person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen by trained personnel. If a problem develops or persists, seek medical attention.
- Skin Contact* : Flush with water for at least 15 minutes. Remove contaminated clothing and wash before reuse. If a problem develops or persists, seek medical attention.
- Eye Contact* : IMMEDIATELY flush with plenty of water. Remove contact lenses. Flush with water for at least 15 minutes. Hold eyelids apart to rinse properly. If a problem develops or persists, seek medical attention.

Symptoms : May cause irritation to skin, eyes and respiratory tract.

Notes to the physician : Treat according to person's condition and specifics of exposure. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

: Dried powder, water spray, carbon dioxide (CO₂), chemical foam.

Unsuitable extinguishing media

: Do not use direct water jet.

Special hazards arising from the substance or mixture

: Flammable liquid and vapors. May be ignited by heat, sparks or flame. Water spray can reduce the intensity of the flames. However, the water jets can spread the fire.

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters



- : Firefighters must wear self-contained breathing apparatus with full face mask. Firefighting suit may not be efficient against chemicals.

Special fire-fighting procedures

- : Use water spray to cool fire-exposed containers. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- : Do not touch spilled material. Make sure to wear personal protective equipment mentioned in this Safety Data Sheet.

Environmental precautions

- : Prevent entry in sewer and other enclosed area. For a large spillage, consult the Department of Environment or the relevant authorities.

Methods and material for containment and cleaning up

- : Remove sources of ignition. Ventilate the area well. Stop leak, if it's possible to do so without risk. Absorb with inert material (soil, sand, vermiculite) and place in an appropriate waste disposal clearly identified. Use non-sparking and antistatic tools. Dispose via a licensed waste disposal contractor. Finish cleaning by rinsing with soapy water the contaminated surface.

7. HANDLING AND STORAGE

Precautions for safe handling

- : Keep away from heat, sparks and open flame. Avoid all sources of ignition. Use non-sparking and antistatic tools. Ground/bond all containers when transfer large quantities (5 gallons US or 20 L and more). Use only in well ventilated area. Do not breathe vapors, mists or aerosols. Avoid contact with skin, eyes and clothing. Wear eye protection, gloves and other protective clothing that are adapted to the task being performed and the risks involved. Keep in the workplace only the quantities necessary for the work being performed. Keep containers tightly closed when not used. Do not eat, do not drink and do not smoke during use. Wash hands, forearms and face thoroughly after handling this compound and before eating, drinking or using toilet articles. Remove contaminated clothing and wash before reuse.

Conditions for safe storage

- : Storage and handling should follow the NFPA 30 Flammable and/or Combustible Liquids Code and the National Fire Code of Canada (NFCC). Ground or bond large containers. Store tightly close and in properly labelled containers in a cool, dry and well ventilated place. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Keep away from direct sunlight and heat. Store away from oxidizing materials and incompatible materials (see section 10).

Storage temperature

- : 10 to 30°C (50 to 86°F)

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Immediately Dangerous to Life or Health:

Isoamyl alcohol : 500 ppm

Exposure limits

Isoamyl alcohol	: STEL	125 ppm		ACGIH, BC, ON
		125 ppm	452 mg/m ³	RSST
	TWA (8h)	100 ppm		ACGIH, BC, ON, OSHA
		100 ppm	361 mg/m ³	RSST

Exposure controls

Appropriate engineering controls : Provide sufficient mechanical ventilation (general and/or local exhaust) to keep the airborne concentrations of vapors, mists, aerosols or dust below their respective occupational exposure limits.

Respiratory protection

- : Respiratory protection is not required in normal use. Respiratory protection equipment (PPE) must be selected, fitted, maintained and inspected in accordance with regulations and CSA Standard Z 94.4 and approved by NIOSH / MSHA. In case of insufficient ventilation or in confined or enclosed space and for an assigned protection factor (APF) up to 10 times the exposure limit: wear a half mask respirator with organic vapor cartridges fitted with P100 filters. For an APF until maximum 100 times of exposure limit, wear a full face respirator mask with organic vapor cartridges and P100 filters.

Skin protection

- : Personal protective equipment for the body should be selected based on the task being performed and the risks involved. Wear normal work clothing covering arms and legs as required by employer code. Wear an apron or long-sleeve protective coverall suit.

- Hands** : Wear nitrile or neoprene gloves. Chemical-resistant, impervious gloves should be worn at all times when handling this chemical product. Wear nitrile or neoprene gloves. Before using, user should confirm impermeability. Discard gloves that show tears, pinholes, or signs of wear. Gloves must only be worn on clean hands. Wash gloves with water before removing them. After using gloves, hands should be washed and dried thoroughly.
- Eye / face protection** : Wear chemical splash goggles. If risk of contact with eyes or the face, wear a face shield.
- Other protective equipment** : Wear rubber boots to clean up a spill.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid	Flammability (solid, gas)	: Flammable
Color	: Colorless	Flammability limits (% by vol.)	: 1.2 to 9
Odor	: Alcohol-like	Flash point	: 43°C (109.4°F) CC
Odor threshold	: 10 ppm	Auto-ignition temperature	: 355 to 350 °C (635 to 662 °F)
pH	: N/Av	Sensibility to electrostatic charge	: Yes
Melting/Freezing point	: -117°C (-178.6°F)	Sensibility to sparks/friction	: N/Av
Boiling point/range	: 130 - 132°C (266 to 269.6°F)	Vapor density (Air = 1)	: 3
Solubility in water	: Soluble in water 24 g/L @ 20°C (68°F)	Relative density (Water = 1)	: 0.81 kg/L @ 20°C (68°F)
Evaporation rate (BuAc = 1)	: <37.5	Partition coefficient (n-octanol/water)	: 1.35
Vapor pressure	: 0.28 kPa (2.1 mmHg) @ 20°C (68°F)	Decomposition temperature	: N/Av
Volatiles (% by weight)	: >99	Viscosity	: 5.3 cSt @ 20 °C (68 °F)
		Molecular mass	: 88.15

10. STABILITY AND REACTIVITY

- Reactivity** : No information available for this product.
- Chemical stability** : Stable under recommended storage conditions.
- Possibility of hazardous reactions (including polymerizations)**
 : Hazardous polymerization will not occur.
- Conditions to avoid** : Avoid heat, flame and sparks. Avoid contact with incompatible materials.
- Incompatible materials** : Strong oxidizing agents (such as nitric acid, perchloric acid, peroxides, chlorates and perchlorates), strong acids, strong bases.
- Hazardous decomposition products**
 : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. TOXICOLOGICAL INFORMATION

Toxicological data

Chemical name	LC ₅₀ (Inhalation, rat)	LD ₅₀ / mg/kg	
		(Oral, rat)	(Dermal, rabbit)
Isoamyl alcohol	>11 mg/l/4h	>5000	3970

Likely routes of exposure

- Skin** : Yes
- Eye** : Yes
- Inhalation** : Yes
- Ingestion** : Yes

Potential Health Effects:

Signs and symptoms of delayed, immediate and chronic effects:

- Skin** : May cause redness and irritation of the skin. Prolonged or repeated exposure can cause skin drying, defatting and dermatitis. Isoamyl Alcohol (CAS no 123-51-3) causes skin irritation in rabbits (Draize test).
- Eye** : May cause severe eye irritation. Isoamyl Alcohol (CAS no 123-51-3) is irritating on the eyes of rabbits with effects not fully reversible within 8 days (Draize test).

Inhalation	: May cause respiratory tract irritation. High concentrations may cause central nervous system depression characterized by headache, dizziness, vertigo, nausea, drowsiness and fatigue.
Ingestion	: May be harmful if swallowed. Swallowing will cause digestive tract disturbances resulting in nausea, vomiting, cramps and diarrhea.
Sensitization to material	: Ingredients present at levels greater than or equal to 0.1% of this product are skin or respiratory sensitizers.
IRAC/NTP Classification	: No ingredients listed
Carcinogenicity	: Ingredients present at levels greater than or equal to 0.1% of this product are not listed as a carcinogen by IARC, ACGIH, NIOSH, NTP or OSHA.
Mutagenicity	: Ingredients in this product present at levels greater than or equal to 0.1% are not known to cause mutagenic effect.
Reproductive Effects	: Ingredients in this product present at levels greater than or equal to 0.1% are not known to cause effects on reproduction.
Specific target organ effects – single exposure	: Respiratory system.
Specific target organ effects – repeated exposure	: No target organ is listed
Other information	: The oral and skin acute toxicity estimates (ATE) of the mixture were calculated to be greater than 2000 mg/kg but lower than 5000 mg/Kg. These values are classified category 5 by the GHS. These values are not classified according to WHMIS 2015 and OSHA HCS 2012. The acute toxicity estimate (ATE) by inhalation Category 4 is considered as a minimal classification. The classification into a more severe category must be applied if there is data available that warrant it.

12. ECOLOGICAL INFORMATION

Ecotoxicity	:	Fish - <i>Oncorhynchus mykiss</i> - Rainbow trout	LC ₅₀	700 mg/L; 96 h (Isoamyl alcohol) OECD 203
		Aquatic Invertebrate - <i>Daphnia magna</i> (static)	EC ₅₀	255 mg/L; 48 h (Isoamyl alcohol)
		Algae - <i>Desmodesmus subspicatus</i>	ECr ₅₀	274 mg/L; 96 h (Isoamyl alcohol)
Persistence	:	Not persistent in the environment.		
Degradability	:	Isoamyl Alcohol (CAS no 123-51-3) in air decomposed by photochemical processes through oxidation by hydroxyl free radicals. It is also ready biodegradability at 81% after 27 days (OECD Guideline 301F).		
Bioaccumulation potential	:	Isoamyl Alcohol (CAS no 123-51-3) in water and has a low Bioconcentration Factor (BCF) of 7 and a log Kow of 1,35. It should not be expected to accumulate in food chains.		
Mobility in soil	:	Isoamyl Alcohol (CAS no 123-51-3) is soluble in water. Its estimated Koc value of 5.52 suggests that it is expected to have very high mobility in soil. Due to its volatility, it also has a partition in the air.		
Other adverse environmental effects	:	This chemical does not deplete the ozone layer.		

13. DISPOSAL CONSIDERATIONS

Handling for Disposal	:	Important! Prevent waste generation. Use in full. DO NOT puncture, cut, heat or burn container, even after use. DO NOT throw residual to sewer, streams, sewers or drinking water supply. Return empty container properly labeled to supplier or everywhere there is a recovery program. Residues and empty containers must be considered as hazardous waste. Dispose via a licensed waste disposal contractor. Observe all federal, state/provincial and municipal regulations. If necessary consult the Department of Environment or the relevant authorities
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14. TRANSPORTATION INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
DOT	UN1105	PENTANOLS. (2-METHYL-1-BUTANOL)	3	III	Flammable Liquid
Additional Information	This material is not listed as a marine pollutant. Permit required for transportation with proper placards displayed on vehicle.				
TDG	UN1105	PENTANOLS. (2-METHYL-1-BUTANOL)	3	III	Flammable Liquid
Additional Information	Emergency response guidebook 2012 - 129				
IMO/IMDG	UN1105	PENTANOLS. (2-METHYL-1-BUTANOL)	3	III	Flammable Liquid
Additional Information	Emergency schedules (EmS-No) F-E, S-D				
IATA	UN1105	PENTANOLS. (2-METHYL-1-BUTANOL)	3	III	Flammable Liquid
Additional Information					

15 - REGULATORY INFORMATION

US Federal Information:

- Toxic Substance Control Act (TSCA) :
All ingredients are listed in the TSCA Inventory or otherwise comply with TSCA requirements.
- EPCRA Section 313 Toxic Chemicals:
No material is listed.
- CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):
No material is listed.
- EPCRA Section 302/304 Extremely Hazardous Substances:
No material is listed.
- Clean Water Act (CWA) 311 Hazardous Substances:
No material is listed.
- Clean Water Act (CWA) Priority Pollutants:
No material is listed.
- Clean Air Act (CAA) 111:
No material is listed.
- Clean Air Act (CAA 112b) HON - Hazardous Organic National Emission Air Pollutants:
No material is listed.
- Clean Air Act (CAA 112b) HAP - Hazardous Air Pollutants:
No material is listed.
- CAA 112(r) Regulated Chemicals for Accidental Release Prevention:
No material is listed.
- California Proposition 65:
No material is listed.

Canadian Information:

- Canada DSL and NDSL:
All ingredients are listed in the Domestic Substances List (DSL).
- Canadian National Pollutant Release Inventory Substances (NPRI):
No material is listed.

WHMIS 1988:

- Class B3 : Combustible Liquid
- Class D2B : Toxic material causing other toxic effects

NFPA



16. OTHER INFORMATION

Other special considerations for handling : Provide adequate information, instruction and training for operators.

Prepared by: Flottec, LLC

Revised by: C. Yuen

REASON FOR REVISION: Section 1: updated Flottec address

DISCLAIMER

The above information is believed to be accurate and represents the best information currently available to us. However, we make no warrantee of merchantability or any other warrant, expressed or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular uses.

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