

## SAFETY DATA SHEET

### 1. IDENTIFICATION

Product identifier used on the label

: **Flottec XF-321 Collector**

Recommended use of the chemical and restrictions on use

: Collector used in mining industry

Chemical family

: Xanthate-Carbonate

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

- Self-heating substances and mixtures (Category 1)
- Combustible Dust
- Acute toxicity, oral (Category 4)
- Acute toxicity, dermal (Category 3)
- Skin corrosion/irritation (Category 2)
- Serious eye damage/eye irritation (Category 1)
- Skin sensitizer (Category 1)
- Specific target organ toxicity, single exposure, Narcotic effects (Category 3)

#### Label elements

##### Signal Word

Danger

##### Hazard statement(s)

- H251: Self-heating; can catch fire
- H29x: May form flammable dust concentrations in air
- H301: Toxic if swallowed
- H312: Harmful in contact with skin
- H318: Causes serious eye damage
- H317: May cause an allergic skin reaction
- H336: May cause drowsiness or dizziness
- H411: Toxic to aquatic life with long lasting effects

##### Precautionary statement(s)

- P260: Do not breathe dusts, vapors, fumes and gas.
- P262: Do not get in eyes, on skin, or on clothing.
- P264: Wash face, hands and any exposed 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.
- P272: Contaminated work clothing should not be allowed out of the workplace.
- P273: Avoid release to the environment.
- P280: Wear protective gloves, protective clothing and eye protection.
- P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or a doctor if you feel unwell.
- P302+352: IF ON SKIN: Wash with soap and water.

- P333+313: If skin irritation or a rash occurs: Get medical advice/attention.  
P304+340+P312: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.  
P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.  
P310: Immediately call a doctor/physician.  
P361 + P364: Remove/Take off immediately all contaminated clothing and wash before reuse.  
P391: Collect spillage.  
P403+P235+P233: Store in a well-ventilated place. Keep container tightly closed. Keep cool.  
P405: Store locked up.  
P407: Maintain air gap between stacks/pallets.  
P413: Stock bulk masses at temperature not exceeding 32°C/90°F.  
P420: Store away from other materials.  
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 hazard to the aquatic environment (Category 2).
- Long-term hazard to the aquatic environment (Category 2)

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Common name	CAS #	Concentration / wt %
Modified carbonate	n/d	74-95
Volatile mixture	n/d	10% max
Free alkalis	n/d	0.6% max
Own DTP	n/d	5-10

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. Avoid touching eyes with contaminated body parts. 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 severe eye irritation or eye damage. May cause skin irritation. May cause an allergic reaction of the skin. High concentrations may cause central nervous system depression characterized by headache, dizziness, vertigo, nausea, drowsiness and fatigue.

- 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*

- : Dry chemicals, carbon dioxide (CO<sub>2</sub>). Flood the area with water.

*Unsuitable extinguishing media*

- : Do not use direct water jet.

### Special hazards arising from the substance or mixture

- : Chemical of XF-321 in contact with water will emit carbon disulfide which is flammable. The dry powder or pellet form may also be flammable because of the presence of moisture in the product. May release irritating, toxic and/or corrosive during fire or when heated to decomposition. May form combustible dust concentrations in air.

### 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*

- : Water spray can be used to cool equipment exposed to heat and flame. 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

- : Do not allow material to contaminate ground water system. For a large spillage, consult the Department of Environment or the relevant authorities.

### Methods and material for containment and cleaning up

- : Ventilate well the area. Avoid generating dusty conditions. Vacuum or sweep up and place in an appropriate waste disposal container. Finish cleaning by rinsing with water contaminated surface. Dispose via a licensed waste disposal contractor.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

- : Avoid excessive heat and moisture. Use only in well ventilated area. Avoid breathing dust and fume. Avoid generating dusty conditions. 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. Use non-sparkling and antistatic tools. Do not eat, do not drink and do not smoke during use. Keep containers tightly closed when not used. May form combustible dust concentrations in air. Keep away from heat and open flame. After use, wash hands with soap and water. Wash contaminated clothing before reuse.

### Conditions for safe storage

- : Heating and overexposure to moisture of XF-321 and heating or aging of XF-321 solutions causes some decomposition to poisonous and flammable carbon disulfide. Storage tank should have certain design features for maximum safety, and the vapor space should be free of sources of ignition. Store tightly close and in properly labelled container. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Store away from oxidizing materials and incompatible materials (see section 10). Keep away from moisture. Keep away from direct sunlight and heat.

### Storage temperature

- : 10 to 32°C (50 to 89.6 °F)

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 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. Ensure that eyewash stations and safety showers are close to the workstation.

- Respiratory protection** : A respirator is not required in a well-ventilated area. 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 appropriate cartridges fitted with P100 filters. For an APF until maximum 100 times of exposure limit, wear a full face respirator mask with appropriate cartridges and P100 filters. For concentrations higher than the Threshold Limit Value, wear any self-contained breathing apparatus that has a full face piece and is operated in a pressure-demand or other positive-pressure mode.
- 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.
- Eye / face protection** : Wear chemical splash goggles. If risk of contact with eyes or the face, wear a face shield.
- Hands** : Wear nitrile or neoprene gloves. Disposable nitrile gloves can also be used, but discard after single use. 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. Before using, user should confirm impermeability. Discard gloves that show tears, pinholes, or signs of wear.
- Other protective equipment** : Wear safety shoes.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state</b>	: Liquid	<b>Flammability limits (% by vol.)</b>	: N/Av
<b>Color</b>	: Brown	<b>Flash point</b>	: <30°C
<b>Odor</b>	: Disagreeable	<b>Auto-ignition temperature</b>	: > 120°C (248°F)
<b>Odor threshold</b>	: N/Av	<b>Sensibility to electrostatic charge</b>	: No
<b>pH</b>	: 10.6	<b>Sensibility to sparks/friction</b>	: No
<b>Melting/Freezing point</b>	: N/Av	<b>Vapor density (Air = 1)</b>	: N/Av
<b>Boiling point/range</b>	: 85°C	<b>Relative density (Water = 1)</b>	: 1.05 kg/L @ 20°C (68°F)
<b>Solubility in water</b>	: Soluble 420 g/100 g @ 20°C (68 °F)	<b>Partition coefficient (n-octanol/water)</b>	: N/Av
<b>Evaporation rate (BuAc = 1)</b>	: N/Av	<b>Decomposition temperature</b>	: > 119 °C (246.2°F)
<b>Vapor pressure</b>	: N/Av	<b>Viscosity</b>	: N/Av
<b>Volatiles (% by weight)</b>	: N/Av	<b>Molecular mass</b>	: N/Av
<b>Flammability (solid, gas)</b>	: Self-heating substance		

## 10. STABILITY AND REACTIVITY

- Reactivity** : This product should not be mixed with acids since evolution of toxic and flammable hydrogen sulfide gas could result. Chemical of XF-321 in contact with water will emit carbon disulfide which is flammable. The dry powder or pellet form may also be flammable because of the presence of moisture in the product.
- Chemical stability** : Stable under recommended storage conditions.
- Possibility of hazardous reactions (including polymerizations)** : Hazardous polymerization will not occur under recommended storage.
- Conditions to avoid** : Avoid contact with incompatible materials. Avoid generating dusty conditions. Avoid exposure of the XF-321 to heat or moisture and heating or aging of XF-321 solutions. Avoid excessive heat and moisture.
- Incompatible materials** : Strong oxidizing agents (such as nitric acid, perchloric acid, peroxides, chlorates and perchlorates), strong acids, strong bases, flammable liquids.
- Hazardous decomposition products** : Hydrogen sulfide (H<sub>2</sub>S), carbon disulfide (CS<sub>2</sub>).

## 11. TOXICOLOGICAL INFORMATION

### Toxicological data

Chemical name	LC <sub>50</sub> (Inhalation, rat)	LD <sub>50</sub> / mg/kg	
		(Oral, rat)	(Dermal, rabbit)
XF-321	N/Av	800	<1000

### 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. The mechanical friction can increase skin irritation. The chemical compounds of this group, XF-321, are highly irritating to the skin in rabbits (OECD 404).

**Eye** : May cause severe eye irritation or eye damage. The chemical compounds of this group, XF-321, are severely irritating to the eyes (rabbits, OECD 405).

**Inhalation** : Overexposure may cause nose, throat and respiratory tract irritation. High concentrations may cause central nervous system depression characterized by headache, dizziness, vertigo, nausea, drowsiness and fatigue.

**Ingestion** : Harmful if swallowed. Swallowing will cause digestive tract disturbances resulting in nausea, vomiting, cramps and diarrhea.

**Sensitization to material** : The chemical compounds of this group, XF-321, were reported as potential sensitizers (OECD TG 409). There are not 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**  
: Central nervous system.

**Specific target organ effects – repeated exposure**  
: No target organ is listed.

**Other information** : The oral acute toxicity estimate (ATE) of the mixture was calculated to be greater than 300 mg/Kg but lower than 2000 mg/kg. This value is classified according to GHS: Acute toxicity, oral (Category 4). The skin acute toxicity estimates (ATE) of the mixture was calculated to be greater than 200 mg/kg but lower than 1000 mg/Kg. This value is classified according to GHS: Acute toxicity, dermal (Category 3).

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity** :  
Pescado - Oncorhynchus mykiss - Trucha arco iris LC<sub>50</sub> 596 mg/L; 96 h (XF-321) OECD 203

**Persistence** : Contains an ingredient that may be persistent in aquatic environment.

**Degradability** : XF-321 is readily chemically decomposes to Isopropyl Alcohol and carbon disulfide, especially in the presence of moisture/water. These compound are readily biodegradable, >60% degraded in 8 days (OECD Guideline 301A).

**Bioaccumulation potential** : XF-321 has a partition factors Log Kow of <0, indicating that it should not accumulate in the food chain.

**Mobility in soil** : The estimated Koc value of 6 to 24 suggests that XF-321 are expected to have very high mobility in soil.

**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. 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.

### 14. TRANSPORTATION INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
DOT	UN 1131	Carbon disulfide	3	I	Flammable
<b>Additional Information</b>		Answer Guide 131 (Toxic Flammable Liquids)			
TDG	UN 1131	Carbon disulfide	3	I	Flammable
<b>Additional Information</b>		Answer Guide 131 (Toxic Flammable Liquids)			
IMO/IMDG	UN 1131	Carbon disulfide	3	I	Flammable
<b>Additional Information</b>		Answer Guide 131 (Toxic Flammable Liquids)			
IATA	UN 1131	Carbon disulfide	3	I	Flammable
<b>Additional Information</b>		Answer Guide 131 (Toxic Flammable Liquids)			

### 15 - REGULATORY INFORMATION

**US Federal Information:**

- Toxic Substance Control Act (TSCA)  
 This material is listed in the TSCA Inventory or otherwise comply with TSCA requirements.
- EPCRA Section 313 Toxic Chemicals:  
 Sodium hydroxide (CAS no 1310-73-2).  
 Isopropyl alcohol (CAS no. 67-63-0).
- CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):  
 Sodium hydroxide (CAS no 1310-73-2).
- Clean Water Act (CWA) Priority Pollutants:  
 No material is listed.
- Clean Water Act (CWA) 311 Hazardous Substances:  
 Sodium hydroxide (CAS no 1310-73-2).
- Clean Air Act (CAA) 111:  
 Isopropyl alcohol (CAS no. 67-63-0).
- California Proposition 65:  
 No material is listed.

**Canadian Information:**

- Canada DSL and NDSL:  
 This product is on the Domestic Substances List (DSL) under Sodium diethyldithiocarbamate(CAS no 148-18-5)..
- Canadian National Pollutant Release Inventory Substances (NPRI):  
 Isopropyl alcohol (CAS no. 67-63-0).

**WHMIS 1988:**

- Class B4 : Flammable Solid
- Class D2B : Toxic material causing other toxic effects
- Class E : Corrosive material

**NFPA**



### 16. OTHER INFORMATION

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

**Prepared by:** Flottec, LLC

**Revised by:**



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**REASON FOR REVISION:** Section 1 – updated Flottec address, Section 14 – Updated additional information.

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**DISCLAIMER**

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