Safety Data Sheet

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **DSF 105**

Recommended Use of the Chemical and Restrictions on Use Frothing agent for mineral recovery.

Supplier: Ixom Operations Pty Ltd
ABN: 51 600 546 512
Street Address: Level 8, 1 Nicholson Street
East Melbourne Victoria 3002
Australia

Telephone Number: +61 3 9906 3000
Emergency Telephone: **1 800 033 111 (ALL HOURS)**

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

2. HAZARDS IDENTIFICATION

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:
Flammable liquids - Category 3
Eye Irritation - Category 2A
Specific target organ toxicity (single exposure) - Category 3

SIGNAL WORD: WARNING

Hazard Statement(s):
H226 Flammable liquid and vapour.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary Statement(s):

Prevention:
P210 Keep away from heat, sparks, open flames, hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground or 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.
P261 Avoid breathing mist, vapours, spray.
P264 Wash hands thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves / protective clothing / eye protection / face protection.

Response:
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.
P370+P378 In case of fire: Use extinguishing media as outlined in Section 5 of this Safety Data Sheet to extinguish.

Storage:
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:
P501 Dispose of contents and container in accordance with local, regional, national, international regulations.

Poisons Schedule (SUSMP): None allocated.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Components	CAS Number	Proportion	Hazard Codes
Methyl isobutyl carbinol	108-11-2	>60%	H226 H335
Diisobutyl ketone	108-83-8	<2%	H226 H335
Methyl isobutyl ketone	108-10-1	<1%	H225 H332 H319 H335
Other component(s)	-	to 100%	-

4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.

Inhalation:
Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If patient finds breathing difficult and develops a bluish discolouration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Seek immediate medical advice.

Skin Contact:
If skin contact occurs, remove contaminated clothing and wash skin with running water. If irritation occurs seek medical advice.

Eye Contact:
If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre or a doctor, or for at least 15 minutes.

Ingestion:
Rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Seek immediate medical assistance.

Indication of immediate medical attention and special treatment needed:
Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:
Alcohol resistant foam is the preferred firefighting medium but, if it is not available, normal protein foam can be used.

Unsuitable Extinguishing Media:
Water jet. Solid water jet/stream may scatter and spread the fire.

Hazchem or Emergency Action Code: · 3Y

Specific hazards arising from the chemical:
Flammable liquid. May form flammable vapour mixtures with air. Vapour may travel a considerable distance to source of ignition and flash back.

Special protective equipment and precautions for fire-fighters:
On burning will emit toxic fumes, including those of oxides of carbon . Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion. Heating can cause expansion or decomposition of the material, which can lead to the containers exploding. If safe to do so, remove containers from the path of fire. Keep containers cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures/Environmental precautions:
Shut off all possible sources of ignition. Clear area of all unprotected personnel. If contamination of sewers or waterways has occurred advise local emergency services.

Personal precautions/Protective equipment/Methods and materials for containment and cleaning up:
Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and breathing in vapours. Work up wind or increase ventilation. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Collect and seal in properly labelled containers or drums for disposal. Use non-sparking tools.

7. HANDLING AND STORAGE

Precautions for safe handling:
Avoid skin and eye contact and breathing in vapour. All potential sources of ignition (open flames, pilot lights, furnaces, spark producing switches and electrical equipment etc) must be eliminated both in and near the work area. Do NOT smoke. Take precautionary measures against static discharges. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities:
Store in a cool, dry, well ventilated place. Store away from sources of heat or ignition. Store away from incompatible materials described in Section 10. Keep containers closed when not in use - check regularly for leaks.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters: No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for constituent(s):

Methyl isobutyl carbinol: 8hr TWA = 104 mg/m^3 (25 ppm), 15 min STEL = 167 mg/m^3 (40 ppm), Sk
Diisobutyl ketone: 8hr TWA = 145 mg/m^3 (25 ppm)
Methyl isobutyl ketone: 8hr TWA = 205 mg/m^3 (50 ppm), 15 min STEL = 307 mg/m^3 (75 ppm)

As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.

TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.

STEL (Short Term Exposure Limit) - the airborne concentration of a particular substance calculated as a time-weighted average over 15 minutes, which should not be exceeded at any time during a normal eight hour work day. According to current knowledge this concentration should neither impair the health of, nor cause undue discomfort to, nearly all workers.

`Sk' (skin) Notice - absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Appropriate engineering controls:
Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Workplace Exposure Standards. Vapour heavier than air - prevent concentration in hollows or sumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as Personal Protective Equipment (PPE):
The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, SAFETY SHOES, CHEMICAL GOGGLES, GLOVES, RESPIRATOR.

Wear overalls, chemical goggles and impervious gloves. Use with adequate ventilation. If determined by a risk assessment an inhalation risk exists, wear an organic vapour respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

When handling this product in bulk quantities, and/or in Intermediate Bulk Containers (IBC's), wear overalls, safety shoes, impervious gloves, chemical goggles, and a face shield. If determined by a risk assessment an inhalation risk exists, wear appropriate respiratory protection as mentioned above.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid

Colour:	Colourless
Odour:	Mild
Solubility:	Miscible in water.
Specific Gravity:	0.81
Relative Vapour Density (air=1):	>1
Vapour Pressure (20 °C):	Not available
Flash Point (°C):	ca. 41
Flammability Limits (%):	Not available
Autoignition Temperature (°C):	Not available
Boiling Point/Range (°C):	Not available
pH:	Not available

10. STABILITY AND REACTIVITY

Reactivity: No information available.

Chemical stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions: Hazardous polymerisation will not occur.

Conditions to avoid: Avoid exposure to heat, sources of ignition, and open flame.

Incompatible materials: Incompatible with acids , acid chlorides , oxidising agents .

Hazardous decomposition products: Oxides of carbon.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Ingestion: Swallowing can result in nausea, vomiting and central nervous system depression. If the victim is showing signs of central system depression (like those of drunkeness) there is greater likelihood of the patient breathing in vomit and causing damage to the lungs.

Eye contact: An eye irritant.

Skin contact: Contact with skin may result in irritation. Will have a degreasing action on the skin. Repeated or prolonged skin contact may lead to irritant contact dermatitis. Can be absorbed through the skin with resultant adverse effects.

Inhalation: Material is irritant to the mucous membranes of the respiratory tract (airways). Breathing in vapour can result in headaches, dizziness, drowsiness, and possible nausea. Breathing in high concentrations can produce central nervous system depression, which can lead to loss of co-ordination, impaired judgement and if exposure is prolonged, unconsciousness.

Acute toxicity: No LD50 data available for the product. However, for the major constituent:
Oral LD50 (rat): 2590 mg/kg
Dermal LD50 (rabbit): 2870 mg/kg
Inhalation LC50 (rat): >16000 mg/m^3/4hr

Respiratory or skin sensitisation: Not a skin sensitiser (guinea pig).

Chronic effects: No information available for the product.
For the component Methylisobutyl carbinol: May have effects on the kidneys.
For the component Methylisobutyl ketone: The product has been found to cause cancer in laboratory animals.
Methylisobutyl ketone has been classified by the International Agency for Research on Cancer (IARC) as a Group 2B.
Group 2B - The agent is possibly carcinogenic to humans.

Aspiration hazard: May be harmful if swallowed and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity Avoid contaminating waterways.

13. DISPOSAL CONSIDERATIONS

Disposal methods:
Refer to Waste Management Authority. Dispose of material through a licensed waste contractor. Advise flammable nature. Normally suitable for incineration by an approved agent.

14. TRANSPORT INFORMATION

Road and Rail Transport
Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.

UN No:	2053
Transport Hazard Class:	3 Flammable Liquid
Packing Group:	III
Proper Shipping Name or Technical Name:	METHYL ISOBUTYL CARBINOL
Hazchem or Emergency Action Code:	· 3Y

Marine Transport
Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN No:	2053
Transport Hazard Class:	3 Flammable Liquid
Packing Group:	III
Proper Shipping Name or Technical Name:	METHYL ISOBUTYL CARBINOL
IMDG EMS Fire:	F-E
IMDG EMS Spill:	S-D
Marine Pollutant	No

Air Transport
Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

UN No:	2053
Transport Hazard Class:	3 Flammable Liquid
Packing Group:	III
Proper Shipping Name or Technical Name:	METHYL ISOBUTYL CARBINOL

15. REGULATORY INFORMATION

Classification:
This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:
Flammable liquids - Category 3
Eye Irritation - Category 2A
Specific target organ toxicity (single exposure) - Category 3

Hazard Statement(s):
H226 Flammable liquid and vapour.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Poisons Schedule (SUSMP): None allocated.

All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Ixom Operations Pty Ltd SDS; 02/ 2017.

This safety data sheet has been prepared by Ixom Operations Pty Ltd Toxicology & SDS Services.

Reason(s) for Issue:
Reissue of an obsolete SDS
Change in Formulation

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Ixom Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

Ixom Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.