SECTION 1: Identification : Product identifier and chemical identity

1.1. Product identifier

Product name : FLASH 21B

1.2. Recommended uses and restrictions

Recommended use : Hydrocarbon gelling agent

1.3. Supplier information

Perimeter Solutions, Solberg Asia Pacific Pty Ltd.
46 Hudson Crescent, Lavington, NSW 2641, Australia
Tel. +61 2 6040 6900
24hr Tel: +61 2 9430 6396

Emergency number :CHEMTREC 800-424-9300 CANUTEC 613-996-6666
1-800-862-115 (Australia)

SECTION 2: Hazards identification

2.1. Classification of the hazardous chemical

Classification (GHS-AU)

Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Inhalation:vapor)	H332
Specific Target Organ Toxicity (repeated exposure)	H373
Skin Corr. 1C	H314
Eye Dam. 1	H318

2.2. Label elements

Hazard pictograms (GHS-AU) :

GHS05 GHS07 GHS08

Signal word (GHS-AU) : Danger

Contains : Sulfuric acid, iron(3+) salt (3:2); Ethanol, 2-amino-,sulphate (salt); Ethylene glycol; Quaternary ammonium compounds, alkylbenzyldimethyl, chlorides

Hazard statements (GHS-AU) :
H302+H332 - Harmful if swallowed or if inhaled
H314 - Causes severe skin burns and eye damage
H373 – May cause damage to organs through prolonged or repeated exposure.

Precautionary statements (GHS-AU) :
P260 - Do not breathe fumes/gas/mist/vapors/spray
P264 - Wash hands, forearms and face thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves, protective clothing. eye protection and face protection
P301+P330+P331+P312 - IF SWALLOWED: rinse mouth, Do NOT induce vomiting, call a POISON CENTRE or doctor/physician if you feel unwell
P303+P310+P361+P353 - IF ON SKIN (or hair): Immediately call a POISON CENTRE or doctor/physician, take off immediately all contaminated clothing, rinse skin with water
P304+P340+P312 - IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing, call a POISON CENTRE or doctor/physician if you feel unwell
P305 +P351+P310+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Immediately call a POISON CENTRE or doctor/physician. Continue rinsing.
P363 - Wash contaminated clothing before reuse
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

Additional hazard statements (GHS-AU) : AUH071 - Corrosive to the respiratory tract

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

Name	CAS No	%
Sulfuric acid, iron(3+) salt (3:2)	10028-22-5	40 - 70
Ethanol, 2-amino-, sulphate (salt)	56633-27-3	7 – 13
Ethylene glycol	107-21-1	7 – 13
Quaternary ammonium compounds, alkylbenzyldimethyl, chlorides	8001-54-5	5 – 10
Ethyl alcohol	64-17-5	0.5 – 1.5

Any components of this mixture not classified as hazardous under the regulations and guidance relevant to this document are not indicated in the composition appearing in this section.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a physician immediately.

First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Call a POISON CENTRE (Australia Telephone 13 11 26) or physician immediately.

First-aid measures after eye contact : Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

First-aid measures after ingestion : Rinse mouth. Never give anything by mouth is person is losing consciousness, is unconscious or convulsing. Do not induce vomiting. Call a physician immediately.

4.2. Symptoms caused by exposure

Symptoms/injuries after inhalation : Harmful if inhaled. Corrosive to the respiratory tract.

Symptoms/injuries after skin contact : Burns.

Symptoms/injuries after eye contact : Serious damage to eyes. Can cause blindness.

Symptoms/injuries after ingestion : Harmful if swallowed. Burns.

4.3. Indication of any immediate medical attention and special treatment needed

Other medical advice or treatment : Treat symptomatically. Look for symptoms of aspiration.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media : This mixture is not combustible. Use extinguishing media suitable for surrounding fire.

Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Can ignite if strongly heated.Drums may explosively rupture in a fire; therefore keep containers cool with water spray. Wear full chemical protective equipment including a self-contained breathing apparatus with full-face mask. Prevent fire fighting medium from entering drains or waterways.

Products of exposure to fire may include, but are not limited to: oxides of sulphur, nitrogen and carbon.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Fight fire from a safe distance or a protected location.

Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus (SCBA). Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes. Do not breathe mist or spray.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Do not allow into any sewer, on the ground or into any waterway. If the spill in in a building, prevent product from entering drains, ventilation systems or confined areas.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Small Spills: Introduce good ventilation and remove ignition sources. Wear suitable gloves and respirator and soak up material with dry sand or Vermiculite (do not use a combustible absorbent such as sawdust). Place the recovered material in a suitable waste disposal container. Seal the container and label it in accordance with the NOHSC/ASCC labelling code. Wash spill area with plenty of water. Take steps to prevent rinse water from entering drains or waterways.

Large spills: Isolate and restrict entry to spill area. Wearing full personal protection equipment, contain spill with dry sand, earth, or Vermiculite (do not use a combustible absorbent such as sawdust). Prevent run-off into drains or waterways. Bail or pump any free liquid into suitable sealable containers. Collect absorbed material and place it also into suitable sealable containers. Seal all containers and label them in accordance with the NOHSC/ASCC labelling code to ensure proper disposal. Hose down residue with plenty of water. Take steps to prevent rinse water from entering drains or waterways.

SECTION 7: Handling and storage, including how the chemical may be safely used

7.1. Precautions for safe handling

Precautions for safe handling : Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes. Do not breathe fumes/gas/mist/vapors/spray. Immediately report leaks, spills or failures of the safety equipment (e.g. ventilation system). Wear personal protective equipment.

Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated area, separate from incompatible materials (see section 10 : Stability and Reactivity). Do not store in unlabelled containers. Store out of direct sunlight.

SECTION 8: Exposure controls/personal protection

An Australian exposure standard for this mixture has not been set by NOHSC/ASCC. Information for components are shown below :

8.1. Control parameters - exposure standards

Ethylene glycol (107-21-1)		
Australia	TWA (mg/m³)	10 mg/m³ (particulate) 52 mg/m³ (vapor)
Australia	TWA (ppm)	20 ppm (vapor)
Australia	STEL (mg/m³)	104 mg/m³ (vapor)
Australia	STEL (ppm)	40 ppm (vapor)
USA - ACGIH	ACGIH Ceiling (mg/m³)	100 mg/m³ (aerosol only)
USA - ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen

Ethyl alcohol (64-17-5)		
Australia	TWA (mg/m³)	1880 mg/m³
Australia	TWA (ppm)	1000 ppm
USA - ACGIH	ACGIH STEL (ppm)	1000 ppm
USA - ACGIH	ACGIH chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans

Iron salts, soluble (as Fe)		
Australia	TWA (mg/m³)	1 mg/m³
USA - ACGIH	ACGIH TWA (mg/m³)	1 mg/m³

8.2. Monitoring

No additional information available

8.3. Appropriate engineering controls

Appropriate engineering controls : General ventilation is usually adequate. Provide eyewash and safety shower if contact or splash hazard exists. Ensure that ventilation is sufficient to control exposure levels below exposure standards.

8.4. Personal protective equipment

Hand protection	:	Protective gloves
Eye protection	:	Safety glasses
Skin and body protection	:	Prevent all skin contact. Wear suitable protective clothing
Respiratory protection	:	In the event of a large spill or if working in enclosed areas, or if mists, aerosols or vapors are generated and their airborne concentration is unknown wear, in the addition to the above, a full-face AS/NZ 1716 compliant cartridge type respirator with an organic vapor filter; combine it with a particulate filter in the presence of aerosols or mists (for selection guidance see AS/NZ 1715). If respiratory protection in the workplace can only be achieved by the use of PPE, or when working in confined spaces, use a full-face air supplied respirator.
Environmental exposure controls	:	Avoid uncontrolled release to the environment.

SECTION 9: Physical and chemical properties

Physical state	:	Liquid
Appearance	:	Amber Liquid
Colour	:	Amber
Odour	:	Faint, Characteristic
Odour threshold	:	No data available
pH	:	1.89
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point / Freezing point	:	Not established
Boiling point	:	No data available
Flash point	:	> 93.3 °C (199.9 °F)(closed cup)
Auto-ignition temperature	:	Not applicable
Flammability (solid, gas)	:	Not applicable
Vapor pressure	:	No data available
Relative density	:	1.395
Density	:	No data available
Solubility	:	Soluble.
Partition coefficient n-octanol/water	:	No data available
Viscosity	:	No data available
Explosive properties	:	No data available
Explosive limits	:	No data available
Minimum ignition energy	:	No data available
Fat solubility	:	No data available

SECTION 10: Stability and reactivity

Reactivity	:	The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reactions known under normal conditions of use.
Conditions to avoid	:	None under recommended storage and handling conditions (see section 7).
Incompatible materials	:	Oxidising agents, strong acids, strong bases or reducing agents.
Hazardous decomposition products	:	Oxides of carbon, nitrogen and sulfur.

SECTION 11: Toxicological information

Acute toxicity (oral)	:	LD50 (rat) = 500 mg/kg (ferric sulphate); LD50 (rat) = 426 mg/kg (quaternaries)
Acute toxicity (dermal)	:	LD50 (rat) = 9530 mg/kg (ethylene glycol); LD50 (rat) = 400 - 2000 mg/kg (quaternaries)
Acute toxicity (inhalation)	:	Inhalation:vapor: Harmful if inhaled.
Chronic Health Effects	:	Frequent or prolonged exposure to the iron salts in this mixture may lead to iron poisoning. Repeated high levels of iron salts my lead to iron build-up and produce adverse health effects in organs such as the liver, spleen, lymphatic system, kidneys and pancreas. Ethylene glycol has shown to be a developmental hazard in test animals. The relevance of these findings to humans is unclear.

Published values for individual components are indicated below :

ATE AU (oral)	423.308 mg/kg bodyweight

ATE AU (vapors)	11.767 mg/l/4h

Sulfuric acid, iron(3+) salt (3:2) (10028-22-5)	
LD50 oral rat	500 - 2000 mg/kg

Ethylene glycol (107-21-1)	
LD50 oral rat	4700 mg/kg
LD50 dermal rat	10600 mg/kg

Quaternary ammonium compounds, alkylbenzyldimethyl, chlorides (8001-54-5)	
LD50 oral rat	240 mg/kg
LD50 dermal rat	1420 mg/kg

Ethyl alcohol (64-17-5)	
LD50 oral rat	7060 mg/kg
LC50 inhalation rat	124.7 mg/l/4h

Skin corrosion/irritation : Causes severe skin burns.
pH: 1.89

Serious eye damage/irritation : Causes serious eye damage.
pH: 1.89

Respiratory or skin sensitisation : Not classified.

Germ cell mutagenicity : Not classified.

Carcinogenicity :

Chemical Name	IARC	ACGIH®	NTP	OSHA
Ferric Sulphate	Not Listed	Not designated	Not Listed	Not Listed
Ethanol, 2-amino-, sulphate (salt)	Not Listed	Not designated	Not Listed	Not Listed
Benzalkonium Chloride	Not Listed	Not designated	Not Listed	Not Listed
Ethylene glycol	Not Listed	A4	Not Listed	Not Listed
Ethanol	Not Listed	A3	Not Listed	Not Listed

Reproductive toxicity : Development of Offspring - Ethylene glycol is considered a developmental hazard based on animal evidence. In rats and mice, embryotoxic (late resorptions), fetotoxic (reduced fetal body weight) and teratogenic (external, soft tissue and skeletal defects) effects were observed at relatively high oral doses that caused no or minimal maternal toxicity. It is unlikely that humans could be exposed to high enough doses to cause developmental effects. No relevant human information was located.

STOT-single exposure : Ingestion – Depression of the central nervous system (CNS) and effects on the heart and kidneys. In some cases there may be delayed effects on the CNS.

STOT-repeated exposure : Ingestion – Kidney stomes and long lasting kidney injury.

Aspiration hazard : Not classified.

SECTION 12: Ecological information

According to the National Code of Practice for the Preparation of Safety Data Sheets, Environmental classification information is not mandatory . Information relevant for GHS classification is available on request

12.1. Ecotoxicity

Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.

Aquatic toxicity :

Ferric Sulphate (Concentrations indicated as Iron ion)	
LC50 fish 1	37.2 mg/l (Exposure time: 96 h - Species: Gambusia affinis)
EC50 Daphnia 1	10 mg/l (Exposure time: 48 h - Species: Daphnia magna)
Algae Toxicity	NOEC = 5.6 mg (Exposure time 7 days – Species: Scenedesmus sp.)

Ethylene glycol (107-21-1)	
LC50 fish 1	41000 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
LC50 fish 2	14 - 18 ml/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 Daphnia 1	46300 mg/l (Exposure time: 48 h - Species: Daphnia magna)
Partition coefficient n-octanol/water	-1.93

Quaternary ammonium compounds, alkylbenzyldimethyl, chlorides (8001-54-5)	
LC50 fish 1	0.223 - 0.46 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
LC50 fish 2	0.823 - 1.61 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])

Ethyl alcohol (64-17-5)	
LC50 fish 1	12.0 - 16.0 ml/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
LC50 fish 2	> 100 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Daphnia 1	9268 - 14221 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 Daphnia 2	2 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
Partition coefficient n-octanol/water	-0.32

12.2. Persistence and degradability

Ferric Sulphate	This substance is rapidly eliminated from the aquatic environment by irreversible adsorbtion onto suspended matter and dissolved organics. In addition ferric sulphate precipitates from water as ferric hydroxide.
Quaternary ammonium compounds, alkylbenzyldimethyl, chlorides	“Readily biodegradable”: >60% BOD, 28 days when tested to OECD method 301D

12.3. Bioaccumulative potential

Ethylene glycol (107-21-1)	
Partition coefficient n-octanol/water	See section 12.1 on ecotoxicology

Ethyl alcohol (64-17-5)	
Partition coefficient n-octanol/water	See section 12.1 on ecotoxicology

12.4. Mobility in soil

Ethylene glycol (107-21-1)	
Partition coefficient n-octanol/water	See section 12.1 on ecotoxicology

Ethyl alcohol (64-17-5)	
Partition coefficient n-octanol/water	See section 12.1 on ecotoxicology

12.5. Other adverse effects

Ozone : Not classified.

Other adverse effects : No additional information available

FLASH 21B	
Fluorinated greenhouse gases	False
GWPmix comment	No known effects from this product.

Sulfuric acid, iron(3+) salt (3:2) (10028-22-5)	
Fluorinated greenhouse gases	False

Ethanol, 2-amino-, sulphate (salt) (56633-27-3)	
Fluorinated greenhouse gases	False

Ethylene glycol (107-21-1)	
Fluorinated greenhouse gases	False

Quaternary ammonium compounds, alkylbenzyldimethyl, chlorides (8001-54-5)	
Fluorinated greenhouse gases	False

Ethyl alcohol (64-17-5)	
Fluorinated greenhouse gases	False

SECTION 13: Disposal considerations

Waste treatment methods : Waste resulting from this mixture may only be disposed of in accordance with applicable State and local regulations. These regulations vary from jurisdiction to jurisdiction and hence the user is counselled to seek advice from the local authority and classify the waste before considering disposal. The disposal information given below is a general guide and does not replace the requirement of the local regulations.

Disposal : If possible recycle, otherwise dispose strictly in accordance with local industrial waste or environmental protection regulations. Send empty drums to a drum recycling organisation (ensure that the labels are legible and remain on the drums

Special Precautions : Do not allow this material to contaminate soil, sewerage systems, surface or ground water. Use only the original containers or equivalent and ensure they are properly sealed to prevent spillage. The empty drums must not be reused, cut, welded drilled or subjected to a grinding operation or be stored in the vicinity of such operations.

SECTION 14: Transport information

14.1. UN number

UN-No. (ADG) : 3264

UN-No. (IMDG) : 3264

UN-No. (IATA) : 3264

14.2. Proper Shipping Name - Addition

Proper Shipping Name (ADG) : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (FERRIC SULPHATE)
Proper Shipping Name (IMDG) : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (FERRIC SULPHATE)
Proper Shipping Name (IATA) : Corrosive liquid, acidic, inorganic, n.o.s. (ferric sulphate)

14.3. Transport hazard class(es)

ADG

Transport hazard class(es) (ADG) : 8
Danger labels (ADG) : 8
:

IMDG

Transport hazard class(es) (IMDG) : 8
Danger labels (IMDG) : 8
:

IATA

Transport hazard class(es) (IATA) : 8
Hazard labels (IATA) : 8
:

14.4. Packing group

Packing group (ADG) : III

14.5. Environmental hazards

Marine pollutant : No

14.6. Special precautions for user

Specific storage requirement : No data available

Shock sensitivity : No data available

14.7. Additional information

Other information : No supplementary information available.

14.8. Hazchem or Emergency Action Code

Hazchem code : 2X

SECTION 15: Regulatory information

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

AICS All ingredients are listed on the AICS
SUSMP A Schedule 6 poison
AgVet Not listed

15.2. International agreements

No additional information available

SECTION 16: Any other relevant information

Revision date : 02/12/2022

Classification:

Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Inhalation:vapor)	H332

Specific Target Organ Toxicity (Repeated Exposure)	H373
Skin Corr. 1C	H314
Eye Dam. 1	H318

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This safety data sheet (SDS) summarises as of the date of issue our best knowledge of the health and safety hazard information of the product, and in particular, how to safely handle and use the product in the workplace. Since Perimeter Solutions, Solberg Asia Pacific Pty Ltd. cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, review this SDS in the context of how the user intends to handle and use then product in the workplace. If clarification or further information is needed to ensure that an appropriate assessment can be made, the user should contact this company. Our responsibility for the products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

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