

SAFETY DATA SHEET

WORMALD NAFP-III

Infosafe No.: LQBO6
ISSUED Date : 19/04/2023
ISSUED by: WORMALD AUSTRALIA PTY LTD

Section 1 - Identification

Product Identifier

WORMALD NAFP-III

Company Name

WORMALD AUSTRALIA PTY LTD (ABN 80 008 399 004)

Address

91 Derby Street Silverwater
NSW 2128 Australia

Telephone/Fax Number

Tel: 133 166

Emergency Phone Number

133 166

Emergency Contact Name

John Lynch

E-mail Address

jlynch@wormald.com.au

Recommended use of the chemical and restrictions on use

Fire protection agent for use in hand held fire extinguishers.

Section 2 - Hazard(s) Identification

GHS classification of the substance/mixture

Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

Gases under pressure: Category Liquefied gas

Sensitisation - skin: Category 1

Carcinogenicity: Category 2

Reproductive Toxicity (effects on or via lactation): Category Additional

Specific target organ toxicity (repeated exposure): Category 2

Hazardous to the Aquatic Environment - Acute Hazard: Category 2

Hazardous to the Aquatic Environment - Long-Term Hazard: Category 1

Hazardous to the Ozone Layer: Category 1

Signal Word (s)

WARNING

Hazard Statement (s)

H280 Contains gas under pressure; may explode if heated.

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

H362 May cause harm to breast-fed children.

H373 May cause damage to organs through prolonged or repeated exposure.

H401 Toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

H420 Harms public health and the environment by destroying ozone in the upper atmosphere.

Pictogram (s)

Health hazard, Environment, Exclamation mark, Gas cylinder



Precautionary Statement – Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P263 Avoid contact during pregnancy and while nursing.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statement – Response

- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P302+P352 IF ON SKIN: Wash with plenty of water.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P391 Collect spillage.

Precautionary Statement – Storage

- P405 Store locked up.
- P410+P403 Protect from sunlight. Store in a well-ventilated place.

Precautionary Statement – Disposal

- P501 Dispose of contents/container to an approved waste disposal plant.
- P502 Refer to manufacturer or supplier for information on recovery or recycling.

Section 3 - Composition and Information on Ingredients

Ingredients

Name	CAS	Proportion
Ethane, 2,2-dichloro-1,1,1-trifluoro (gas)	306-83-2	40-<60 %
1-Chloro-1,2,2,2-tetrafluoroethane	2837-89-0	30-<50 %
1,1,1,2-Tetrafluoroethane	811-97-2	1-10 %
d-Limonene	5989-27-5	1-<5 %

Section 4 - First Aid Measures

Inhalation

If inhaled, remove affected person from contaminated area. Keep at rest until recovered. If symptoms develop and/or persist seek medical attention.

Ingestion

Not considered a potential route of exposure.

Skin

Remove all contaminated clothing immediately. Clothing frozen to the skin should be thawed before being removed. Wash affected area thoroughly with soap and water. For Frostbite: Flush affected areas with lukewarm water. Do not use hot water. Treat as thermal burns. Seek IMMEDIATE medical attention.

Eye

If eye tissue is frozen, seek IMMEDIATE medical attention. If tissue is not frozen, immediately irrigate with copious amounts of water for at least 15 minutes. Remove contact lenses. Eyelids to be held open. Seek medical attention.

First Aid Facilities

Eyewash and normal washroom facilities.

Advice to Doctor

Treat symptomatically.

Other Information

For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

Section 5 - Firefighting Measures

Suitable Extinguishing Media

Product is a fire extinguishing agent. Use extinguishing agent suitable for type of surrounding fire.

Hazards from Combustion Products

Non combustible material. Thermal decomposition may produce toxic and/or irritating fumes and gases including: carbon monoxide, hydrogen chloride, phosgene and hydrogen fluoride.

Specific hazards arising from the chemical

Cylinders may explode when heated or may become a projectile in a fire. Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result .

Hazchem Code

2TE

Decomposition Temperature

Not available

Precautions in connection with Fire

Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. Fight fire from safe location.

Section 6 - Accidental Release Measures

Emergency Procedures

Remove all sources of ignition. Increase ventilation. Evacuate all unprotected personnel. Use self-contained breathing apparatus (S.C.B.A) and full protective clothing to minimise exposure. Allow gas to vent safely to atmosphere, preferably in well ventilated, remote location. Monitor oxygen concentration in confined spaces. Check for leaks using pressure drop test or soapy water on joints and outlets. Shut cylinder valve to stop leak if possible and safe to do so. Check gas concentration to ensure area is safe before removing protective equipment. Damaged gas cylinders should be returned to the supplier.

Section 7 - Handling and Storage

Precautions for Safe Handling

Use in a well ventilated area. Wear appropriate personal protective equipment and clothing to prevent exposure. Use smallest possible amounts in designated areas with adequate ventilation. Maintain high standards of personal hygiene ie. washing hands prior to eating, drinking, smoking or using toilet facilities. DO NOT enter confined spaces where gas may have collected. Suck back of water into the container must be prevented. Do not allow back feed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Refer to supplier's container handling instructions.

Avoid exposure. Do not handle until all safety precautions have been read and understood.

It is recommended that pregnant or breastfeeding women should not handle this product unless adequate exposure protection can be assured at all times. Female personnel planning pregnancy should be made aware of the potential risks.

Conditions for safe storage, including any incompatibilities

Protect containers against physical damage. Store in a cool, dry, well-ventilated place, low fire risk area. Protect from extremes of temperature and weather. Do not allow any part of a cylinder to be exposed above 50°C. Storage areas should be kept clean and free from flammable materials. Ensure that containers are properly vented to prevent build up of pressure. Ensure that storage conditions comply with applicable local and national regulations.

For information on the design of the storeroom, reference should be made to Australian Standard AS 4332 - The storage and handling of gases in cylinders.

Unsuitable Materials

Reacts with metal halides and active metals, eg. sodium (Na), potassium (K), lithium (Li), calcium (Ca), zinc (Zn), powdered aluminium (Al) and aluminium alloys, magnesium (Mg) and magnesium alloys.

May react with brass and steel.

May react explosively with strong oxidisers.

May degrade rubber, and plastics such as methacrylate polymers, polyethylene and polystyrene, paint and coatings.

Section 8 - Exposure Controls and Personal Protection

Occupational exposure limit values

No exposure standards have been established for this material. However, the available exposure limits for ingredients are listed below:

1,1,1,2-Tetrafluoroethane
TWA: 1000 ppm; 4240 mg/m³

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

Source: Safe Work Australia

Biological Monitoring

No biological limits allocated.

Control Banding

Not available

Engineering Controls

This substance is hazardous and should be used with a local exhaust ventilation system, drawing vapours away from workers' breathing zone. If the engineering controls are not sufficient to maintain concentrations of vapours/mists below the exposure standards, suitable respiratory protection must be worn.

Before entering a confined space where asphyxiant is present, check to make sure sufficient Oxygen (19.5%) exists. Refer to relevant regulations for further information concerning ventilation requirements.

Respiratory Protection

If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable type AX filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements.

Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

Eye and Face Protection

Safety glasses with side shields, chemical goggles or full-face shield as appropriate should be used. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform to relevant regulations.

Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 (series) - Eye Protectors for Industrial Applications.

Hand Protection

Wear gloves of impervious material such as nitrile, PVA or viton. Final choice of appropriate gloves will vary according to individual circumstances. i.e. methods of handling or according to risk assessments undertaken. Occupational protective gloves should conform to relevant regulations.

Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

Thermal Hazards

No further relevant information available.

Body Protection

Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

Other Information

May act as an asphyxiant gas. Asphyxiant gases which when present in an atmosphere in high concentration, lead to reduction of oxygen concentration by displacement or dilution. It is not appropriate to recommend an exposure standard for each simple asphyxiant, rather it should be required that a sufficient oxygen concentration be maintained.

Section 9 - Physical and Chemical Properties

Properties	Description	Properties	Description
Form	Liquefied Gas	Appearance	Liquefied gas
Colour	Colourless	Odour	Citrus odour
Melting Point	Not available	Boiling Point	-1.9°C
Decomposition Temperature	Not available	Solubility in Water	Immiscible
Specific Gravity	1.36	pH	Not applicable
Vapour Pressure	221 kPa (20°C)	Relative Vapour Density (Air=1)	5.0
Evaporation Rate	Not available	Odour Threshold	Not available
Viscosity	Not available	Volatile Component	Not available
Partition Coefficient: n-octanol/water (log value)	Not available	Flash Point	Not available
Flammability	Non flammable	Auto-Ignition Temperature	Not available
Flammable Limits - Lower	Not available	Flammable Limits - Upper	Not available
Explosion Properties	Not available	Oxidising Properties	Not available
Particle Characteristics	Not available		

Section 10 - Stability and Reactivity

Reactivity

Reacts with incompatible materials.

Chemical Stability

Stable under normal conditions of storage and handling.

Possibility of hazardous reactions

Reacts with incompatible materials.

Conditions to Avoid

Extremes of temperature and direct sunlight

Incompatible Materials

Reacts with metal halides and active metals, eg. sodium (Na), potassium (K), lithium (Li), calcium (Ca), zinc (Zn), powdered aluminium (Al) and aluminium alloys, magnesium (Mg) and magnesium alloys.

May react with brass and steel.

May react explosively with strong oxidisers.

May degrade rubber, and plastics such as methacrylate polymers, polyethylene and polystyrene, paint and coatings.

Hazardous Decomposition Products

Thermal decomposition may produce toxic and/or irritating fumes and gases including: carbon monoxide, carbon dioxide, hydrogen bromide and hydrogen fluoride.

Hazardous Polymerization

Will not occur.

Section 11 - Toxicological Information

Toxicology Information

No toxicity data available for this material. The available acute toxicity data for the ingredients are given below.

Acute Toxicity - Oral

d-limonene

LD50 (rat): >2000 mg/kg

Acute Toxicity - Dermal

d-limonene

LD50 (rabbit): >5000 mg/kg

Ethane, 2,2-dichloro-1,1,1-trifluoro (gas)

LC50 (rabbit): >2000 mg/kg

Acute Toxicity - Inhalation

Ethane, 2,2-dichloro-1,1,1-trifluoro (gas)

LC50 (rat): 32000 ppm/4h

1,1,1,2-tetrafluoroethane

LC50 (rat): 359453.102 ppm/4h

Ingestion

Ingestion unlikely due to form of product.

Inhalation

Inhalation of product vapours may cause irritation of the nose, throat and respiratory system.

May act as an asphyxiant gas. Asphyxiant gases which when present in an atmosphere in high concentration, leads to reduction of oxygen concentration by displacement or dilution. Symptoms include decreased visual acuity, decreased coordination and judgment, headache, dizziness, confusion, drowsiness, fatigue, shortness of breath, muscular weakness, convulsions, unconsciousness, coma and eventually death.

Skin

May be irritating to skin. The symptoms may include redness, itching and swelling.

May cause frostbite injuries to skin due to uncontrolled release of compressed gas resulting in redness, tissue destruction. May cause an allergic skin reaction.

Eye

May cause frostbite injuries to eyes due to uncontrolled release of compressed gas resulting in stinging, tearing, blurred vision and possibly permanent damage to eyes.

Respiratory Sensitisation

Not expected to be a respiratory sensitiser.

Skin Sensitisation

May cause an allergic skin reaction.

Germ Cell Mutagenicity

Not considered to be a mutagenic hazard.

Carcinogenicity

Suspected of causing cancer. Classified as a suspected human carcinogen.

d-limonene is listed as a Group 3: Not classifiable as to carcinogenicity to humans according to International Agency for Research on Cancer (IARC).

Reproductive Toxicity

May cause harm to breast-fed children. Classified as a substance that produces toxic human reproductive or developmental effects on or via lactation.

STOT - Single Exposure

Not expected to cause toxicity to a specific target organ.

STOT - Repeated Exposure

May cause damage to organs through prolonged or repeated exposure.

Aspiration Hazard

Not expected to be an aspiration hazard.

Other Information

This material contains asphyxiant gas, which when present in an atmosphere in high concentrations, lead to a reduction of oxygen concentration by displacement or dilution. It is not appropriate to recommend an exposure standard for each simple asphyxiant, rather it should be required that a sufficient oxygen concentration be maintained. The minimum oxygen content in air should be 19.5 per cent by volume under normal atmospheric pressure. Unconsciousness and death can rapidly ensue in an environment, which is deficient in oxygen.

Section 12 - Ecological Information

Ecotoxicity

Toxic to aquatic life with long lasting effects.

No ecological data available for this material. The available ecological data for the ingredients is given below:

Persistence and degradability

Ethane, 2,2-dichloro-1,1,1-trifluoro (gas)

Persistence Water/Soil: HIGH

Persistence Air: HIGH

1-chloro-1,2,2,2-tetrafluoroethane

Persistence Water/Soil: HIGH

Persistence Air: HIGH

1,1,1,2-tetrafluoroethane

Persistence Water/Soil: HIGH

Persistence Air: HIGH

d-limonene

Persistence Water/Soil: HIGH

Persistence Air: HIGH

Mobility

Ethane, 2,2-dichloro-1,1,1-trifluoro (gas)

Mobility in soil: LOW (KOC = 154.4)

1-chloro-1,2,2,2-tetrafluoroethane

Mobility in soil: LOW (KOC = 154.4)

1,1,1,2-tetrafluoroethane

Mobility in soil: LOW (KOC = 96.63)

d-limonene

Mobility in soil: LOW (KOC = 1324)

Bioaccumulative Potential

Ethane, 2,2-dichloro-1,1,1-trifluoro (gas)

Bioaccumulation: LOW (BCF = 36)

1-chloro-1,2,2,2-tetrafluoroethane

Bioaccumulation: LOW (LogKOW = 1.8605)

1,1,1,2-tetrafluoroethane

Bioaccumulation: LOW (LogKOW = 1.68)

d-limonene

Bioaccumulation: HIGH (LogKOW = 4.8275)

Other Adverse Effects

Not available

Environmental Protection

Do not discharge this material into waterways, drains and sewers.

Acute Toxicity - Fish

Ethane, 2,2-dichloro-1,1,1-trifluoro (gas)

LC50 (fish): 55.5 mg/l/96h

1,1,1,2-tetrafluoroethane

LC50 (fish): 450 mg/l/96h

d-limonene

LC50 (fish): 0.46 mg/l/96h

Acute Toxicity - Algae

Ethane, 2,2-dichloro-1,1,1-trifluoro (gas)

EC50 (Algae or other aquatic plants): 67.8 mg/l/96h

1,1,1,2-tetrafluoroethane

EC50 (Algae or other aquatic plants): >114 mg/l/72h

EC50 (Algae or other aquatic plants): 142 mg/l/96h

NOEC(ECx) (Algae or other aquatic plants): ~13.2 mg/l/72h

d-limonene

EC50 (Algae or other aquatic plants): 0.214 mg/l/72h

Acute Toxicity - Other Organisms

Ethane, 2,2-dichloro-1,1,1-trifluoro (gas)

EC50 (Crustacea): 17 mg/l/48h

NOEC(ECx) (Crustacea): <2.24 mg/l/48h

1,1,1,2-tetrafluoroethane

EC50 (Crustacea): 980 mg/l/48h

d-limonene

EC50 (Crustacea): 0.307 mg/l/48h

Chronic Toxicity - Other Organisms

d-limonene

NOEC(ECx) (Crustacea): 0.05 mg/l/504h

Hazardous to the Ozone Layer

Harms public health and the environment by destroying ozone in the upper atmosphere.

Section 13 - Disposal Considerations

Disposal Considerations

Dispose of waste according to applicable local and national regulations. Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes including emptied containers are controlled wastes and should be disposed of in accordance with all applicable local and national regulations.

To minimise personal exposure to the chemical, refer to Section 8 — Exposure controls and personal protection.

Section 14 - Transport Information

Transport Information

This material is classified as Dangerous Goods Division 2.2 Non-flammable Non-toxic Gases.

Dangerous Goods are incompatible in a placard load with any of the following:

- Class 1: Explosives
- Division 2.1 Flammable Gas when the Division 2.2 gas has a subsidiary risk 5.1 except when all are packed in cylinders or pressure drums not exceeding 500L capacity.
- Division 2.3 Toxic Gas when the Division 2.2 gas has a subsidiary risk 5.1 except when all are packed in cylinders or pressure drums not exceeding 500L capacity.

- Division 4.2: Spontaneously combustible substances
- Division 5.2: Organic peroxides

Marine Transport (IMO/IMDG):

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

Class/Division: 2.2

UN No: 3163

Proper Shipping Name: LIQUEFIED GAS, N.O.S.(Contains Ethane, 2,2-dichloro-1,1,1-trifluoro (gas))(d-limonene Marine pollutant)

Packing Group: -

EMS: F-C, S-V

Special Provisions: 274, 392

Air Transport (ICAO/IATA):

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

Class/Division: 2.2

UN No: 3163

Proper Shipping Name: Liquefied gas, n.o.s.(Contains Ethane, 2,2-dichloro-1,1,1-trifluoro (gas))

Packing Group: -

Packaging Instructions (passenger & cargo): 200

Packaging Instructions (cargo only): 200

Hazard Label: Non-flammable Gas

Special Provisions: -

ADG U.N. Number

3163

ADG Proper Shipping Name

LIQUEFIED GAS, N.O.S.(Contains Ethane, 2,2-dichloro-1,1,1-trifluoro (gas))

ADG Transport Hazard Class

2.2

Hazchem Code

2TE

IERG Number

06

Special Precautions for User

Not available

IMDG Marine pollutant

Yes

Transport in Bulk

Not available

Section 15 - Regulatory Information

Regulatory Information

Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Poisons Schedule

Not Scheduled

Montreal Protocol

Listed

Stockholm Convention

Not listed

Rotterdam Convention

Not listed

International Convention for the Prevention of Pollution from Ships (MARPOL)

Not available

Agricultural and Veterinary Chemicals Act 1994

Not available

Basel Convention

Not available

Section 16 - Any Other Relevant Information

Date of Preparation

SDS Created: April 2023

Version Number

1.0

Literature References

Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice.

Standard for the Uniform Scheduling of Medicines and Poisons.

Australian Code for the Transport of Dangerous Goods by Road & Rail.

Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.

Code of Practice for Supply Diversion into Illicit Drug Manufacture.

National Code of Practice for Chemicals of Security Concern.

Agricultural Compounds and Veterinary Chemicals Act.

International Agency for Research on Cancer (IARC) Monographs.

Montreal Protocol on Substances that Deplete the Ozone Layer.

Stockholm Convention on Persistent Organic Pollutants (POPs).

Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.

International Air Transport Association (IATA) Dangerous Goods Regulations.

International Maritime Dangerous Goods (IMDG) Code.

Workplace exposure standards for airborne contaminants.

Adopted biological exposure determinants, American Conference of Industrial Hygienists (ACGIH).

Globally Harmonised System of Classification and Labelling of Chemicals (7th revised edition).

Code of Practice: Managing Noise and Preventing Hearing Loss at Work.

END OF SDS

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