

SAFETY DATA SHEET

1951

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name 11 COMPONENT MIXTURE (BALANCE N2) (# 1951)
Synonym(s) 1951 - SDS NUMBER • PRODUCT CODES: 292 • SPECIAL GAS MIXTURE

1.2 Uses and uses advised against

Use(s) CALIBRATION • INDUSTRIAL APPLICATIONS

1.3 Details of the supplier of the product

Supplier name BOC LIMITED (AUSTRALIA)
Address 10 Julius Avenue, North Ryde, NSW, 2113, AUSTRALIA
Telephone 131 262, (02) 8874 4400
Fax 132 427 (24 hours)
Website <http://www.boc.com.au>

1.4 Emergency telephone number(s)

Emergency 1800 653 572 (24/7) (Australia only)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO AUSTRALIAN WHS REGULATIONS

GHS classification(s) Gases Under Pressure: Compressed gas
Flammable Gases: Category 1
Germ Cell Mutagenicity: Category 1B
Carcinogenicity: Category 1B

2.2 Label elements

Signal word DANGER

Pictogram(s)



Hazard statement(s)

H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
H340 May cause genetic defects.
H350 May cause cancer.

Prevention statement(s)

P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P281 Use personal protective equipment as required.

Response statement(s)

P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 Eliminate all ignition sources if safe to do so.

PRODUCT NAME 11 COMPONENT MIXTURE (BALANCE N2) (# 1951)**Storage statement(s)**

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

Disposal statement(s)

P501 Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

| Ingredient | CAS Number | EC Number | Content (v/v) |
|----------------|------------|-----------|---------------|
| ETHYLENE | 74-85-1 | 200-815-3 | 15% |
| ETHYLENE OXIDE | 75-21-8 | 200-849-9 | 2% |
| ETHANE | 74-84-0 | 200-814-8 | 0.5% |
| METHANE | 74-82-8 | 200-812-7 | 0.5% |
| ETHYL CHLORIDE | 75-00-3 | 200-830-5 | 0.0005% |
| VINYL CHLORIDE | 75-01-4 | 200-831-0 | 0.0005% |
| PROPYLENE | 115-07-1 | 204-062-1 | 0.0003% |
| NITROGEN | 7727-37-9 | 231-783-9 | Remainder |
| ARGON | 7440-37-1 | 231-147-0 | 10% |
| CARBON DIOXIDE | 124-38-9 | 204-696-9 | 10% |
| CYCLOPROPANE | 75-19-4 | 200-847-8 | 0.01% |

4. FIRST AID MEASURES

4.1 Description of first aid measures

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

Inhalation If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. Apply artificial respiration if not breathing. Give oxygen if available. For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion Ingestion is not considered a potential route of exposure.

First aid facilities No information provided.

4.2 Most important symptoms and effects, both acute and delayed

Ethylene oxide is classified as carcinogenic to humans (IARC Group 1). May cause genetic defects.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use water fog to cool containers from protected area.

5.2 Special hazards arising from the substance or mixture

Extremely flammable. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights, mobile phones etc. when handling.

5.3 Advice for firefighters

Temperatures in a fire may cause cylinders to rupture and internal pressure relief devices to be activated. Cool cylinders or containers exposed to fire by applying water from a protected location. Do not approach cylinders or containers suspected of being hot. This material is capable of forming explosive mixtures in air.

5.4 Hazchem code

2SE
 2 Fine Water Spray.
 S Risk of violent reaction or explosion. Wear full fire kit and breathing apparatus. Dilute spill and run-off.
 E Evacuation of people in and around the immediate vicinity of the incident should be considered.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation. Eliminate all sources of ignition. Consider the risk of potentially explosive atmospheres.

6.2 Environmental precautions

Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

6.3 Methods of cleaning up

Carefully move material to a well ventilated remote area, then allow to discharge if safe to do so. Do not attempt to repair leaking valve or cylinder safety devices.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Do not drag, drop, slide or roll cylinders. The uncontrolled release of a gas under pressure may cause physical harm. Use a suitable hand truck for cylinder movement.

7.2 Conditions for safe storage, including any incompatibilities

Do not store near sources of ignition or incompatible materials. Cylinders should be stored below 45°C in a secure area, upright and restrained to prevent cylinders from falling. Cylinders should also be stored in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits.

7.3 Specific end use(s)

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

| Ingredient | Reference | TWA | | STEL | |
|------------------------------|-----------|------------|-------------------|-------|-------------------|
| | | ppm | mg/m ³ | ppm | mg/m ³ |
| Argon | SWA (AUS) | Asphyxiant | | | |
| Carbon dioxide | SWA (AUS) | 5000 | 9000 | 30000 | 54000 |
| Carbon dioxide in coal mines | SWA (AUS) | 12500 | 22500 | 30000 | 54000 |
| Ethane | SWA (AUS) | Asphyxiant | | | |
| Ethyl chloride | SWA (AUS) | 1000 | 2640 | -- | -- |
| Ethylene | SWA (AUS) | Asphyxiant | | | |
| Ethylene Oxide | SWA (AUS) | 1 | 1.8 | -- | -- |
| Methane | SWA (AUS) | Asphyxiant | | | |
| Nitrogen | SWA (AUS) | Asphyxiant | | | |
| Propylene | SWA (AUS) | Asphyxiant | | | |
| Vinyl chloride, monomer | SWA (AUS) | 5 | 13 | -- | -- |

PRODUCT NAME 11 COMPONENT MIXTURE (BALANCE N2) (# 1951)

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

| | |
|--------------------|--|
| Eye / Face | Wear safety glasses. |
| Hands | Wear leather gloves. |
| Body | Wear coveralls and safety boots. |
| Respiratory | Where an inhalation risk exists, wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator. |



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|----------------------------------|------------------------------|
| Appearance | COLOURLESS GAS |
| Odour | SLIGHT ODOUR |
| Flammability | EXTREMELY FLAMMABLE |
| Flash point | NOT AVAILABLE |
| Boiling point | NOT AVAILABLE |
| Melting point | NOT AVAILABLE |
| Evaporation rate | NOT APPLICABLE |
| pH | NOT APPLICABLE |
| Vapour density | NOT AVAILABLE |
| Specific gravity | NOT APPLICABLE |
| Solubility (water) | 0.0149 L/L (Nitrogen) |
| Vapour pressure | NOT AVAILABLE |
| Upper explosion limit | NOT AVAILABLE |
| Lower explosion limit | 6.5 % (Ethylene in nitrogen) |
| Partition coefficient | NOT AVAILABLE |
| Autoignition temperature | NOT AVAILABLE |
| Decomposition temperature | NOT AVAILABLE |
| Viscosity | NOT AVAILABLE |
| Explosive properties | NOT AVAILABLE |
| Oxidising properties | NOT AVAILABLE |
| Odour threshold | NOT AVAILABLE |

9.2 Other information

| | |
|--------------------------------------|-----------------|
| % Volatiles | 100 % |
| Cylinder pressure (when full) | 3000 kPa @ 15°C |

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

No information provided.

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to avoid

No information provided.

10.5 Incompatible materials

Dust of aluminium, chrome, manganese may ignite then explode when heated in carbon dioxide. Incompatible with acrylaldehyde, aziridine, metal acetylides, sodium peroxide.

10.6 Hazardous decomposition products

May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects**Acute toxicity****Information available for the product:**

May be harmful by inhalation. Symptoms are usually delayed, except for serious exposure, and include general anaesthesia, nausea, vomiting, coughing, irritation to eyes and nose, loss of sense of smell and, progressively, stupor, pulmonary oedema and coma. Less frequently reported effects include muscular weakness, abdominal discomfort and diarrhoea and acute encephalopathy.

Information available for the ingredient(s):

| Ingredient | Oral Toxicity (LD50) | Dermal Toxicity (LD50) | Inhalation Toxicity (LC50) |
|----------------|----------------------|------------------------|----------------------------|
| CARBON DIOXIDE | -- | -- | 470000 ppm/30M (rat) |
| ETHYLENE OXIDE | 72 mg/kg (rat) | -- | 800 ppm/4 hours (rat) |
| METHANE | -- | -- | 326 gm/m3/2h (mouse) |
| VINYL CHLORIDE | 500 mg/kg (rat) | -- | 18 pph/15 minutes (rat) |

Skin

Not classified as a skin irritant. Contact may result in mild irritation, redness and rash.

Eye

Not classified as an eye irritant. Contact may result in mild irritation, lacrimation and redness.

Sensitization

Skin sensitisation has been reported 19-20 days after exposure to ethylene oxide. Inhalation of ethylene oxide has been linked to occupational asthma.

Mutagenicity

Ethylene oxide may cause heritable genetic damage.

Carcinogenicity

Ethylene oxide is classified as carcinogenic to humans (IARC Group 1). Chronic exposure has been linked to leukaemia and stomach cancer.

Reproductive

Some studies have detected effects on the reproductive performance of animals exposed to ethylene oxide.

STOT – single exposure

Asphyxiant. Effects are proportional to oxygen displacement. Over exposure may result in dizziness, drowsiness, weakness, fatigue, breathing difficulties and unconsciousness.

STOT – repeated exposure

Chronic exposure may result in cataract development, nerve cell damage, renal failure and cardiovascular collapse.

Aspiration

Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No information provided.

12.2 Persistence and degradability

No information provided.

12.3 Bioaccumulative potential

No information provided.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

When discharged to the atmosphere, carbon dioxide may contribute to the greenhouse effect.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods**Waste disposal**

Cylinders should be returned to the manufacturer or supplier for disposal of contents.

Legislation

Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE



| | LAND TRANSPORT (ADG) | SEA TRANSPORT (IMDG / IMO) | AIR TRANSPORT (IATA / ICAO) |
|-----------------------------|--|--|--|
| 14.1 UN Number | 1954 | 1954 | 1954 |
| 14.2 Proper Shipping Name | COMPRESSED GAS, FLAMMABLE, N.O.S. (Contains ethylene) | COMPRESSED GAS, FLAMMABLE, N.O.S. (Contains ethylene) | COMPRESSED GAS, FLAMMABLE, N.O.S. (Contains ethylene) |
| 14.3 Transport hazard class | 2.1 | 2.1 | 2.1 |
| 14.4 Packing Group | None Allocated | None Allocated | None Allocated |

14.5 Environmental hazards No information provided**14.6 Special precautions for user**

Hazchem code 2SE

GTEPG 2A1

EMS F-D, S-U

Other information Ensure cylinder is separated from driver and that outlet of relief device is not obstructed. Refer to Commonwealth, State and Territory Dangerous Goods Legislation which contain requirements which affect gas storage and transport.

15. REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Poison schedule** Classified as a Schedule 7 (S7) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).**Classifications** Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

Hazard codes

| | |
|-------|---------------------|
| Carc. | Carcinogen |
| F+ | Extremely flammable |
| Muta. | Mutagen |

Risk phrases

| | |
|-----|-------------------------------------|
| R12 | Extremely Flammable. |
| R45 | May cause cancer. |
| R46 | May cause heritable genetic damage. |

Safety phrases

| | |
|-----|--|
| S45 | In case of accident or if you feel unwell seek medical advice immediately (show the label where possible). |
| S53 | Avoid exposure - obtain special instructions before use. |

Inventory listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information The storage of significant quantities of gas cylinders must comply with AS4332 The storage and handling of gases in cylinders.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

| | |
|-------------------|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| CAS # | Chemical Abstract Service number - used to uniquely identify chemical compounds |
| CNS | Central Nervous System |
| EC No. | EC No - European Community Number |
| EMS | Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods) |
| GHS | Globally Harmonized System |
| GTEPG | Group Text Emergency Procedure Guide |
| IARC | International Agency for Research on Cancer |
| LC50 | Lethal Concentration, 50% / Median Lethal Concentration |
| LD50 | Lethal Dose, 50% / Median Lethal Dose |
| mg/m ³ | Milligrams per Cubic Metre |
| OEL | Occupational Exposure Limit |
| pH | relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline). |
| ppm | Parts Per Million |
| STEL | Short-Term Exposure Limit |
| STOT-RE | Specific target organ toxicity (repeated exposure) |
| STOT-SE | Specific target organ toxicity (single exposure) |
| SUSMP | Standard for the Uniform Scheduling of Medicines and Poisons |
| SWA | Safe Work Australia |
| TLV | Threshold Limit Value |
| TWA | Time Weighted Average |

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

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