

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

### 1.1 Product identifier

**Product name** BERYLLIUM OXIDE  
**Synonym(s)** DMO BERYLLIUM OXIDE

### 1.2 Uses and uses advised against

**Use(s)** HEAT SINK COMPOUND

### 1.3 Details of the supplier of the safety data sheet

**Supplier name** DEFENCE MATERIEL ORGANISATION  
**Address** Russell Offices, ACT, Australia, 2600  
**Telephone** (02) 6266 7054 (Mon-Fri 0800-1700)  
**Fax** (02) 6266 7646  
**Email** dmo.hazchem@defence.gov.au  
**Website** Not supplied

### 1.4 Emergency telephone number(s)

**Emergency** 13 11 26 (24Hrs)

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

**GHS Classification(s)** Acute Toxicity: Oral: Category 3  
Skin Corrosion/Irritation: Category 2  
Skin Sensitization: Category 1  
Serious Eye Damage / Eye Irritation: Category 2A  
Acute Toxicity: Inhalation: Category 2  
Specific Target Organ Systemic Toxicity (Single Exposure): Category 3  
Carcinogenicity: Category 1B  
Specific Target Organ Systemic Toxicity (Repeated Exposure): Category 1

### 2.2 Label elements

**Signal word**

**DANGER**

**Pictograms**



**Hazard statement(s)**

H301 Toxic if swallowed.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H330 Fatal if inhaled.  
H335 May cause respiratory irritation.  
H350 May cause cancer.  
H372 Causes damage to organs through prolonged or repeated exposure.

**Prevention statement(s)**

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.  
P264 Wash thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.

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- P271 Use only outdoors or in a well-ventilated area.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P284 Wear respiratory protection.
- Response statement(s)**
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P304 + P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
P310 Immediately call a POISON CENTER or doctor/physician.  
P314 Get medical advice/attention if you feel unwell.  
P320 Specific treatment is urgent - see first aid instructions (applies if immediate administration of antidote is required).  
P330 Rinse mouth.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.  
P362 Take off contaminated clothing and wash before re-use.
- Storage statement(s)**
- P403 + P233 Store in a well-ventilated place. Keep container tightly closed (applies if the substance is volatile so as to generate a hazardous atmosphere).  
P405 Store locked up.
- Disposal statement(s)**
- P501 Dispose of contents/container in accordance with relevant regulations.

**2.3 Other Hazards**

No information provided.

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**3. COMPOSITION/ INFORMATION ON INGREDIENTS**

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**3.1 Substances / Mixtures**

Ingredient	CAS number	EC number	Content
BERYLLIUM OXIDE	1304-56-9	215-133-1	99.8%

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**4. FIRST AID MEASURES**

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**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 a Full-face Class P3 (Particulate) respirator where an inhalation risk exists. Apply artificial respiration if not breathing.
- 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** For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form.
- First aid facilities** No information provided.

**4.2 Most important symptoms and effects, both acute and delayed**

No information provided.

**4.3 Immediate medical attention and special treatment needed**

Treat symptomatically.

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## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

### 5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve toxic gases (beryllium oxides) when heated to decomposition.

### 5.3 Advice for firefighters

Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

### 5.4 Hazchem code

2Z

2	Water Fog (or fine water spray if fog unavailable)
Z	Self Contained Breathing apparatus and protective gloves.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

### 6.2 Environmental precautions

Prevent product from entering drains and waterways.

### 6.3 Methods of cleaning up

Contain spillage, then cover / absorb spill with moist sand or similar, collect and place in sealable containers for re-use, treatment and/or disposal. Avoid generating dust.

### 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

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills. Large storage areas should have appropriate ventilation systems.

### 7.3 Specific end use(s)

No information provided.

## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

### 8.1 Control parameters

#### Exposure standards

Substance	Reference	TWA		STEL	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Beryllium & compounds	SWA (AUS)	--	0.002	--	--

#### 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, use local or extraction

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ventilation at source. Use a fully enclosed ventilated system (e.g. glove box) if available. Maintain dust levels below the recommended exposure standard.

**PPE**

**Eye/Face** Wear safety glasses.  
**Hand** Wear leather gloves.  
**Body** Wear coveralls.  
**Respiratory** Wear a Full-face Class P3 (Particulate) respirator. At high dust levels, wear a Powered Air Purifying Respirator (PAPR) with Class P3 (Particulate) filter.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

<b>Appearance</b>	WHITE SOLID
<b>Odour</b>	SLIGHT ODOUR
<b>Odour Threshold</b>	NOT AVAILABLE
<b>pH</b>	NOT AVAILABLE
<b>Melting Point</b>	2530°C
<b>Boiling Point</b>	NOT AVAILABLE
<b>Flash Point</b>	NOT RELEVANT
<b>Evaporation Rate</b>	NOT AVAILABLE
<b>Flammability</b>	NON FLAMMABLE
<b>Upper Explosion Limit</b>	NOT RELEVANT
<b>Lower Explosion Limit</b>	NOT RELEVANT
<b>Vapour Pressure</b>	NOT AVAILABLE
<b>Vapour Density</b>	NOT AVAILABLE
<b>Solubility (water)</b>	INSOLUBLE
<b>Partition Coefficient</b>	NOT AVAILABLE
<b>Autoignition Temperature</b>	NOT AVAILABLE
<b>Decomposition Temperature</b>	NOT AVAILABLE
<b>Viscosity</b>	NOT AVAILABLE
<b>Explosive Properties</b>	NOT AVAILABLE
<b>Oxidising Properties</b>	NOT AVAILABLE
<b>Specific Gravity</b>	3.0106

### 9.2 Other information

No information provided.

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

Carefully review all information in sections 10.2 to 10.6.

### 10.2 Chemical stability

Stable under recommended conditions of storage.

### 10.3 Possibility of hazardous reactions

Hazardous polymerization is not expected to occur.

### 10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

### 10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), heat and ignition sources.

### 10.6 Hazardous decomposition products

May evolve toxic gases (beryllium oxides) when heated to decomposition.

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

<b>Health hazard summary</b>	Highly toxic - irritant. This product has the potential to cause serious adverse health effects. Use safe work practices to avoid eye or skin contact and inhalation. Over exposure may result in delayed effects which may be fatal. Chronic exposure may result in lung, liver, kidney and heart damage. Beryllium and beryllium compounds are classified as carcinogenic to humans (IARC Group 1). Individuals with pre-existing respiratory impairment (eg asthmatics) or liver, kidney or heart disease are advised to avoid exposure. Chronic exposure to beryllium may result in CBD (Chronic Beryllium Disease). May cause sensitisation by skin contact.
<b>Eye</b>	Irritant. Contact may result in irritation, lacrimation, pain and redness. May result in burns with prolonged contact.
<b>Inhalation</b>	Highly toxic - irritant. Acute exposure may result in irritation of the nose and throat, respiratory system damage, pulmonary oedema and death. Acute effects may be delayed 2 to 5 weeks. Chronic exposure may result in lung fibrosis and heart, kidney and liver damage. Beryllium is classified as carcinogenic to humans (IARC Group 1).
<b>Skin</b>	Irritant. Contact may result in irritation, redness, rash and dermatitis. Prolonged or repeated contact may result in burns. May cause sensitisation by skin contact.
<b>Ingestion</b>	Highly toxic. Ingestion may result in burns to the mouth and throat, nausea, vomiting, abdominal pain and diarrhoea. Ingestion of large quantities may result in ulceration, convulsions and coma.
<b>Toxicity data</b>	BERYLLIUM OXIDE (1304-56-9) TCLo (Inhalation): 17 mg/m <sup>3</sup> /5 hours/day/48 weeks - intermittent (rabbit) TDLo (Intravenous): 500 mg/kg/6 weeks - intermittent (rabbit)

## 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 Results of PBT and vPvB assessment

No information provided.

### 12.6 Other adverse effects

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No information provided.

### 13. DISPOSAL CONSIDERATIONS

#### 13.1 Waste treatment methods

**Waste disposal** Reuse where possible. Return unused portion to the manufacturer. Dispose of in accordance with local regulations. Product may need to be treated prior to disposal. Contact the manufacturer/supplier for additional information (if required).

**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)
<b>14.1 UN number</b>	1566	1566	1566
<b>14.2 UN proper shipping name</b>		BERYLLIUM COMPOUND, N.O.S.	
<b>14.3 Transport hazard classes</b>			
<b>DG division</b>	6.1	6.1	6.1
<b>Subsidiary risk(s)</b>	None Allocated	-	-
<b>14.4 Packing group</b>	II	II	II
<b>14.5 Environmental hazards</b>		None Allocated	
<b>14.6 Special precautions for user</b>			
<b>Hazchem Code</b>	2Z		
<b>EMS</b>		F-A, S-A	

### 15. REGULATORY INFORMATION

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

**Poison schedule** Classified as a Schedule 6 Poison using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

**Classifications**  
 Carc. - Carcinogen  
 T - Toxic  
 T+ - Very toxic  
 Xi - Irritant

**Risk phrases**

R25:	Toxic if swallowed.
R26:	Very toxic by inhalation.
R36/37/38:	Irritating to eyes, respiratory system and skin.
R43:	May cause sensitisation by skin contact.
R48/23:	Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R49:	May cause cancer by inhalation.

**Safety phrases**

S22:	Do not breathe dust.
S24:	Avoid contact with skin.
S36/37/39:	Wear suitable protective clothing, gloves and eye/face protection.
S62:	If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.

Inventory listing(s)

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**AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**

All components are listed on AICS, or are exempt.

**UNITED STATES: TSCA (US Toxic Substances Control Act)**

All components are listed on the TSCA inventory, or are exempt.

**15.2 Chemical safety assessment**

No information provided.

## 16. OTHER INFORMATION

**Additional information** PRIORITY POLLUTANT - ENVIRONMENTAL TOXICITY: This product is known to adversely affect aquatic or animal life in small concentrations. Will accumulate or biomagnify.

IARC GROUP 1 - CONFIRMED HUMAN CARCINOGEN. This product contains an ingredient for which there is sufficient evidence to have been classified by the International Agency for Research into Cancer as a human carcinogen. The use of products known to be human carcinogens should be strictly monitored and controlled.

**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.

**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.

**COLOUR RATING SYSTEM:** RMT has assigned all ChemAlert reports a colour rating of Green, Amber or Red for the sole purpose of providing users with a quick and easy means of determining the hazardous nature of a product. Safe handling recommendations are provided in all ChemAlert reports so as to clearly identify how users can control the hazards and thereby reduce the risk (or likelihood) of adverse effects. As a general guideline, a Green colour rating indicates a low hazard, an Amber colour rating indicates a moderate hazard and a Red colour rating indicates a high hazard.

While all due care has been taken by RMT in the preparation of the Colour Rating System, it is intended as a guide only and RMT does not provide any warranty in relation to the accuracy of the Colour Rating System. As far as is lawfully possible, RMT accepts no liability or responsibility whatsoever for the actions or omissions of any person in reliance on the Colour Rating System.

<b>Abbreviations</b>	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 <sup>3</sup>	Milligrams per Cubic Metre
	OEL	Occupational Exposure Limit
	PEL	Permissible Exposure Limit
	pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
	ppm	Parts Per Million
	REACH	Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals
	STEL	Short-Term Exposure Limit
	STOT-RE	Specific target organ toxicity (repeated exposure)

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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 ChemAlert report has been independently compiled by RMT's scientific department utilising the original Safety Data Sheet ('SDS') for the product provided to RMT by the manufacturer. The information is based on the latest chemical and toxicological research 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. It is an independent collation by RMT of information obtained from the original SDS for this product. Its content has not been authorised or verified by the manufacturer / distributor of the chemical to which it relates.

This ChemAlert report does not constitute the manufacturer's original SDS and is not intended to be a replacement for same. It is provided to subscribers of ChemAlert as a reference tool only, is not all-inclusive and does not represent any guarantee as to the properties of the product. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this ChemAlert report, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this ChemAlert report.

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**End of Report**