

# Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 03.09.2013

Version number 1

Revision: 03.09.2013

## 1 Identification of the substance/mixture and of the company/undertaking

· **Product identifier**

· **Trade name: Melphalan Assay Standard**

· **Reference number: Cat 391**

· **CAS Number:**

148-82-3

· **EC number:**

205-726-3

· **Relevant identified uses of the substance or mixture and uses advised against**

No further relevant information available.

· **Application of the substance / the preparation** Reference material for laboratory use only

· **Manufacturer/Supplier:**

British Pharmacopoeia Commission

MHRA

10 South Colonnade, Canary Wharf

London E14 4PU

United Kingdom

Tel : +44 (0)20 3080 6561

eMail: bpcrs@mhra.gov.uk

· **Further information obtainable from:** eMail: bpcrs@mhra.gov.uk

· **Emergency telephone number:** +44 (0) 20 3080 6561 (Monday - Friday: 8am - 5pm)

## 2 Hazards identification

· **Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**



GHS06 skull and crossbones

Acute Tox. 2 H300 Fatal if swallowed.

Acute Tox. 1 H310 Fatal in contact with skin.

Acute Tox. 1 H330 Fatal if inhaled.



GHS08 health hazard

Muta. 1A H340 May cause genetic defects.

Carc. 1A H350 May cause cancer.

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



T+; Very toxic

R26/27/28: Very toxic by inhalation, in contact with skin and if swallowed.



T; Toxic

R45-46: May cause cancer. May cause heritable genetic damage.



Xn; Harmful

R63: Possible risk of harm to the unborn child.

· **Information concerning particular hazards for human and environment:** Not applicable.

· **Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

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**Hazard pictograms**

GHS06 GHS08

**Signal word** *Danger***Hazard statements***H300+H310+H330 Fatal if swallowed, in contact with skin or if inhaled.**H340 May cause genetic defects.**H350 May cause cancer.**H361 Suspected of damaging fertility or the unborn child.***Precautionary statements***P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.**P310 Immediately call a POISON CENTER or doctor/physician.**P320 Specific treatment is urgent (see on this label).**P361 Remove/Take off immediately all contaminated clothing.**P405 Store locked up.**P501 Dispose of contents/container in accordance with local/regional/national/international regulations.***Additional information:***Restricted to professional users.***Other hazards****Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.

### 3 Composition/information on ingredients

**Chemical characterization: Substances****CAS No. Description***148-82-3 Melphalan***Identification number(s) -****EC number:** 205-726-3**RTECS:** AY3675000**Additional information:** For the wording of the listed risk phrases refer to section 16.

### 4 First aid measures

**Description of first aid measures****General information:***Immediately remove any clothing soiled by the product.**Remove breathing equipment only after contaminated clothing has been completely removed.**In case of irregular breathing or respiratory arrest provide artificial respiration.***After inhalation:***Supply fresh air or oxygen; call for doctor.**In case of unconsciousness place patient in recovery position for transport.***After skin contact:** Immediately wash with water and soap and rinse thoroughly.**After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.**After swallowing:***Rinse mouth. Do not induce vomiting.**Call a doctor immediately.*

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- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:**  
Mouth respiratory protective device.  
Wear self-contained respiratory protective device.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Avoid formation of dust.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Dispose of contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/extraction at the workplace.  
Remove dust thoroughly.  
Store in cool, dry place in tightly closed receptacles.  
Open and handle receptacle with care.
- **Information about fire - and explosion protection:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Store in a cool location.  
Please refer to the manufacturer's certificate for specific storage and transport temperature conditions.  
Store only in the original receptacle.  
Keep container in a well-ventilated place. Keep away from sources of ignition and heat.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** Keep container tightly sealed.
- **Specific end use(s)** No further relevant information available.

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## 8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** Lists used were valid at the time of SDS preparation.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing  
Wash hands before breaks and at the end of work.  
Store protective clothing separately.  
Avoid contact with the eyes and skin.
- **Respiratory protection:**  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**



Tightly sealed goggles

## 9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

· <b>Form:</b>	Solid
· <b>Colour:</b>	Light brown
· <b>Odour:</b>	Odourless
· <b>Odour threshold:</b>	Not determined.

- **pH-value:** Not applicable.

- **Change in condition**

- **Melting point/Melting range:** 180 °C

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<b>Boiling point/Boiling range:</b>	<i>Not determined.</i>
· <b>Flash point:</b>	<i>Not applicable.</i>
· <b>Flammability (solid, gaseous):</b>	<i>Not determined.</i>
· <b>Ignition temperature:</b>	
<b>Decomposition temperature:</b>	<i>Not determined.</i>
· <b>Self-igniting:</b>	<i>Not determined.</i>
· <b>Danger of explosion:</b>	<i>Not determined.</i>
· <b>Explosion limits:</b>	
<b>Lower:</b>	<i>Not determined.</i>
<b>Upper:</b>	<i>Not determined.</i>
· <b>Vapour pressure:</b>	<i>Not applicable.</i>
· <b>Density:</b>	<i>Not determined.</i>
· <b>Relative density</b>	<i>Not determined.</i>
· <b>Vapour density</b>	<i>Not applicable.</i>
· <b>Evaporation rate</b>	<i>Not applicable.</i>
· <b>Solubility in / Miscibility with water:</b>	<i>Not determined.</i>
· <b>Partition coefficient (n-octanol/water):</b>	<i>Not determined.</i>
· <b>Viscosity:</b>	
<b>Dynamic:</b>	<i>Not applicable.</i>
<b>Kinematic:</b>	<i>Not applicable.</i>
· <b>Other information</b>	<i>No further relevant information available.</i>

## 10 Stability and reactivity

- **Reactivity** *Stable under normal conditions.*
- **Chemical stability** *Stable under normal conditions.*
- **Thermal decomposition / conditions to be avoided:**  
*Formation of toxic gases is possible during heating or in case of fire.*
- **Possibility of hazardous reactions** *No dangerous reactions known.*
- **Conditions to avoid** *Heat.*
- **Incompatible materials:** *Strong oxidizing agents.*
- **Hazardous decomposition products:** *Formation of toxic gases is possible during heating or in case of fire.*

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

**LD/LC50 values relevant for classification:**

Oral	LD50	11.2 mg/kg (rat)
	LD 50 (Intraperitoneal)	4.5 mg/kg (rat)
	LD 50 (Intravenous)	4.1 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** *No irritating effect.*
- **on the eye:** *No irritating effect.*
- **Sensitization:** *No sensitizing effects known.*

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- **Additional toxicological information:** Danger through skin adsorption.
- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**  
Muta. 1A, Carc. 1A, Repr. 2

### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water  
Do not allow undiluted product to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **European waste catalogue**  
Waste disposal key numbers from EWC have to be assigned depending on origin and processing.
- **Uncleaned packaging:**
- **Recommendation:** Dispose of in accordance with national regulations.

### 14 Transport information

- |                          |   |
|--------------------------|---|
| · <b>UN-Number</b>       | UN2811  |
| · <b>ADR, IMDG, IATA</b> | 2811 TOXIC SOLID, ORGANIC, N.O.S. (Melphalan) |
| · <b>ADR</b>             | TOXIC SOLID, ORGANIC, N.O.S. (Melphalan)      |
| · <b>IMDG, IATA</b>      |   |

- **Transport hazard class(es)**
- **ADR, IMDG, IATA**



- |                |                       |
|----------------|-----------------------|
| · <b>Class</b> | 6.1 Toxic substances. |
| · <b>Label</b> | 6.1                   |

- |                          |    |
|--------------------------|----|
| · <b>Packing group</b>   | II |
| · <b>ADR, IMDG, IATA</b> |    |

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· <b>Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No Yes (PP)
· <b>Special precautions for user</b>	Warning: Toxic substances.
· <b>Danger code (Kemler):</b>	60
· <b>EMS Number:</b>	F-A,S-A
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b>	
· <b>Excepted quantities (EQ):</b>	E4
· <b>Limited quantities (LQ)</b>	500 g
· <b>Transport category</b>	2
· <b>Tunnel restriction code</b>	D/E
· <b>UN "Model Regulation":</b>	UN2811, TOXIC SOLID, ORGANIC, N.O.S. (Melphalan), 6.1, II

## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Philippines Inventory of Chemicals and Chemical Substances** Substance is not listed.
- **Australian Inventory of Chemical Substances** Substance is listed.
- **Standard for the Uniform Scheduling of Drugs and Poisons** Substance is not listed.
- **National regulations:**
- **Information about limitation of use:**  
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

The information in this safety data sheet (SDS) has been prepared with due care and is true and accurate to the best of our knowledge. The user must determine the suitability of the information for its particular purpose, ensure compliance with existing laws and regulations, and be aware that other or additional safety or performance considerations may arise when using, handling and/ or storing the material. The information in this SDS does not purport to be all inclusive or a guarantee as to the properties of the material supplied, and should be used only as a guide. British Pharmacopoeia Commission Office makes no warranties or representations as to the accuracy and completeness of the information contained herein, shall not be held responsible for the suitability of this information for the user's intended purposes or the consequences of such use, and shall not be liable for any damage or loss, howsoever arising, direct or otherwise.

### · Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
PP: Severe Marine Pollutant  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent

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· **Sources**

Tables 3.1 and 3.2 from Annex 6 of EC 1272/2008, EC 1907/2006, EH40/2005 as amended 2011, Registry of Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition, IUCLID.

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