SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture	Aspen Melphalan 2mg Tablets.
Registration number	-
Synonyms	Alkaran, Alkerana, Melfalan, Melphalan
Issue date	12-July-2013
Version number	01
Revision date	-
Supersedes date	-

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Medicinal product.
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Supplier

Company name	Aspen Europe GmbH	
Address	Industriestrasse- 32-36 D-23843 Bad Oldesloe Germany	
Division		
Telephone		(+) 44 1748 828 391
e-mail	SDSRequest@aspengl.com	
Contact person	Not available.	

1.4. Emergency telephone number	(United Kingdom)	(+) 44 8 08 189 0979
	(Europe)	(+) 1 760 476 3961
	Access code	333974

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Classification	Carc. Cat. 2;R45, Muta. Cat. 2;R46, Repr. Cat. 2;R60-61, T;R25, R43

The full text for all R-phrases is displayed in section 16.

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards

Acute toxicity, oral	Category 3	H301 - Toxic if swallowed.
Skin sensitisation	Category 1	H317 - May cause an allergic skin reaction.
Germ cell mutagenicity	Category 1B	H340 - May cause genetic defects.
Carcinogenicity	Category 1B	H350 - May cause cancer.
Reproductive toxicity	Category 1B	H360FD - May damage fertility. May damage the unborn child.

Hazard summary

Physical hazards	Not classified for physical hazards.
Health hazards	May cause cancer. May cause heritable genetic damage. May impair fertility. May cause harm to the unborn child. Also toxic if swallowed. May cause sensitisation by skin contact.
Environmental hazards	Not classified for hazards to the environment.
Specific hazards	Caution - Potent pharmaceutical agent.
Main symptoms	May cause allergic skin disorders in sensitive individuals.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Melphalan

Hazard pictograms

Signal word Danger

Hazard statements
H301 - Toxic if swallowed.
H317 - May cause an allergic skin reaction.
H340 - May cause genetic defects.
H350 - May cause cancer.
H360FD - May damage fertility. May damage the unborn child.

Precautionary statements

Prevention
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P264 - Wash thoroughly after handling.

Response
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician.
P308 + P313 - IF exposed or concerned: Get medical advice/attention.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention.

Storage P405 - Store locked up.

Disposal P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information Not applicable.

2.3. Other hazards Not a PBT or vPvB substance or mixture.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Melphalan	2	148-82-3 205-726-3	-	-	

Classification: **DSD:** Carc. Cat. 2;R45, Muta. Cat. 2;R46, Repr. Cat. 2;R61, T+;R28, R43

CLP: Acute Tox. 2;H300, Skin Sens. 1;H317, Muta. 1B;H340, Carc. 1B;H350, Repr. 1B;H360FD

CLP: Regulation No. 1272/2008.
DSD: Directive 67/548/EEC.

Composition comments The full text for all R- and H-phrases is displayed in section 16. All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4: First aid measures

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. IF exposed or concerned: Get medical advice/attention.

4.1. Description of first aid measures

Inhalation Not likely, due to the form of the product.

Skin contact Immediately flush skin with plenty of water. Remove contaminated clothing and shoes. If skin irritation or rash occurs: Get medical advice/attention. For minor skin contact, avoid spreading material on unaffected skin.

Eye contact Flush thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.

Ingestion IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician. Rinse mouth thoroughly with water and give large amounts of water to people not unconscious. Do not induce vomiting without advice from medical personnel.

4.2. Most important symptoms and effects, both acute and delayed May cause allergic skin reaction.

4.3. Indication of any immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Medical treatment in cases of overexposure should be treated as an overdose of a cytotoxic agent. For additional guidance, refer to the current prescribing information or to the local poison control information center.

SECTION 5: Firefighting measures

General fire hazards	No unusual fire or explosion hazards noted.
5.1. Extinguishing media	
Suitable extinguishing media	Water fog. Foam. Dry powder.
Unsuitable extinguishing media	Carbon dioxide extinguishers may be ineffective. Do not use water jet as an extinguisher, as this will spread the fire.
5.2. Special hazards arising from the substance or mixture	During fire, gases hazardous to health may be formed.
5.3. Advice for firefighters	
Special protective equipment for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special fire fighting procedures	Move containers from fire area if you can do so without risk.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate personal protective equipment. Local authorities should be advised if significant spillages cannot be contained. Wear protective clothing as described in section 8 of this safety data sheet.
For emergency responders	Keep unnecessary personnel away. Use personal protection recommended in section 8 of the SDS.
6.2. Environmental precautions	Avoid discharge into drains, water courses or onto the ground.
6.3. Methods and material for containment and cleaning up	Sweep up or vacuum up spillage and collect in suitable container for disposal. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Never return spills in original containers for re-use.
6.4. Reference to other sections	For personal protection, see Section 8 of the SDS. For waste disposal, see Section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not taste or swallow. Avoid breathing dust. Avoid contact with skin. Pregnant or breastfeeding women must not handle this product. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash thoroughly after handling. Strict control of access to the working area is essential. Only trained personnel should enter the area during operations. Adopt procedures to prevent contamination of working materials and adjacent areas. Avoid breaking or crushing tablets.
7.2. Conditions for safe storage, including any incompatibilities	Store in a closed container away from incompatible materials. Keep out of the reach of children.
7.3. Specific end use(s)	Pharmaceutical.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters	
Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Recommended monitoring procedures	Follow standard monitoring procedures.
Derived no-effect level (DNEL)	Not available.
Predicted no effect concentrations (PNECs)	Not available.
8.2. Exposure controls	

Appropriate engineering controls	It is strongly advised that dedicated areas and containment, such as glove boxes, isolators, and enclosed material transfer systems be used to prevent personnel exposure and spread of contamination. Local exhaust ventilation (LEV) is not appropriate at this level, since total containment should usually be used.

Individual protection measures, such as personal protective equipment

General information	Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
Eye/face protection	Risk of contact: Wear safety glasses with side shields (or goggles).
Skin protection	
- Hand protection	Wear protective gloves. Suitable gloves can be recommended by the glove supplier. Frequent change is advisable.
- Other	Wear suitable protective clothing. Frequent change is advisable.
Respiratory protection	When isolation is not possible, respiratory protective equipment (RPE) should be combined with applicable protective equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace. Observe any medical surveillance requirements.
Environmental exposure controls	Not available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	2 mg, white to off-white, round, biconvex, film-coated imprinted with "A" on one side and on the other side "GX EH3". Supplied in amber glass bottles with a child resistant closure containing 25 or 50 tablets.
Physical state	Solid.
Form	Tablet.
Colour	White to off-white.
Odour	Not assigned.
Odour threshold	Not available.
pH	Not applicable
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not applicable
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not applicable
Flammability limit - upper (%)	Not applicable
Vapour pressure	Not applicable
Vapour density	Not applicable
Relative density	Not available.
Solubility(ies)	Not available.
Partition coefficient (n-octanol/water)	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	Not available.
Viscosity	Not applicable
Explosive properties	Not applicable.
Oxidizing properties	Not applicable.

9.2. Other information No relevant additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability Material is stable under normal conditions.

10.3. Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid Contact with incompatible materials.

10.5. Incompatible materials Strong oxidizers, strong acids, and strong bases.

10.6. Hazardous decomposition products No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information Potent pharmaceutical agent.

Information on likely routes of exposure

Ingestion Toxic if swallowed.

Inhalation Dust may irritate respiratory system.

Skin contact May cause an allergic skin reaction. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Eye contact Dust may irritate the eyes.

Symptoms Sensitisation.

11.1. Information on toxicological effects

Acute toxicity Toxic if swallowed.

Skin corrosion/irritation Not classified.

Serious eye damage/eye irritation Dust may irritate the eyes.

Respiratory sensitisation Not classified.

Skin sensitisation May cause an allergic skin reaction.

Germ cell mutagenicity May cause genetic defects.

Carcinogenicity May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Melphalan (CAS 148-82-3) 1 Carcinogenic to humans.

Reproductive toxicity May damage fertility or the unborn child.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not available.

Aspiration hazard Not classified.

Mixture versus substance information Not available.

Other information Not available.

SECTION 12: Ecological information

12.1. Toxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test results
Melphalan (CAS 148-82-3)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	> 10 mg/l

12.2. Persistence and degradability The product is expected to be biodegradable. This material contains an active pharmaceutical ingredient that has been shown to be chemically unstable in water.

Persistence and degradability

Hydrolysis

Half-life (Hydrolysis-acidic)

Aspen Melphalan 2mg Tablets. (CAS Mixture) 4.9 Hours

Hydrolysis

Half-life (Hydrolysis-basic)

Aspen Melphalan 2mg Tablets. (CAS Mixture)	3.9 Hours

Half-life (Hydrolysis-neutral)

Aspen Melphalan 2mg Tablets. (CAS Mixture)	4.9 Hours

12.3. Bioaccumulative potential The product is not expected to bioaccumulate.

Partition coefficient n-octanol/water (log Kow)

Melphalan (CAS 148-82-3)	-0.52, at pH 7

Bioconcentration factor (BCF) Not available.

Aspen Melphalan 2mg Tablets. (CAS Mixture)	1 Estimated

12.4. Mobility in soil Not available.

Mobility in general

Volatility

Henry's law

Aspen Melphalan 2mg Tablets. (CAS Mixture)	Estimated Result: 4.20E-13 atm m3/mol at 25 C

12.5. Results of PBT and vPvB assessment Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

EU waste code The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Disposal methods/information Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN3249
14.2. UN proper shipping name	Medicine, solid, toxic, n.o.s.
14.3. Transport hazard class(es)	6.1
Subsidiary class(es)	-
14.4. Packing group	II
14.5. Environmental hazards	No
Tunnel restriction code	D/E
Labels required	6.1
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN3249
14.2. UN proper shipping name	Medicine, solid, toxic, n.o.s.
14.3. Transport hazard class(es)	6.1
Subsidiary class(es)	-
14.4. Packing group	II
14.5. Environmental hazards	No
Labels required	6.1
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	UN3249
14.2. UN proper shipping name	Medicine, solid, toxic, n.o.s.
14.3. Transport hazard class(es)	6.1
Subsidiary class(es)	-
14.4. Packing group	II
14.5. Environmental hazards	No
Labels required	6.1
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number	UN3249
14.2. UN proper shipping name	Medicine, solid, toxic, n.o.s.
14.3. Transport hazard class(es)	6.1
Subsidiary class(es)	-
14.4. Packing group	II
14.5. Environmental hazards	Not available.
Labels required	6.1
ERG code	6L
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

14.1. UN number	UN3249
14.2. UN proper shipping name	Medicine, solid, toxic, n.o.s.
14.3. Transport hazard class(es)	6.1
Subsidiary class(es)	-
14.4. Packing group	II
14.5. Environmental hazards	
Marine pollutant	No
Labels required	6.1
EmS	F-A, S-A
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I

Not listed.

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(1) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work

Not regulated.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding

Not regulated.

Other EU regulations

Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances

Not regulated.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Not listed.

Directive 94/33/EC on the protection of young people at work

Not listed.

Other regulations	The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006. Pregnant women should not work with the product, if there is the least risk of exposure. Regulated as a medicinal product in Europe.
National regulations	Young people under 18 years old are not allow to work with this product according to the EU Directive 94/33/EC on the protection of young people at work.
15.2. Chemical safety assessment	No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations	IATA: International Air Transport Association. IMDG: International Maritime Dangerous Goods. RID: Regulations concerning the International Carriage of Dangerous Goods by Rail. ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways. DNEL: Derived No-Effect Level. PNEC: Predicted No-Effect Concentration. LD50: Lethal Dose, 50%.
References	GSK Alkeran Injection, SDS version 27, 16 September 2011.
Information on evaluation method leading to the classification of mixture	The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.
Full text of any statements or R-phrases and H-statements under Sections 2 to 15	R25 Also toxic if swallowed. R28 Very toxic if swallowed. R43 May cause sensitisation by skin contact. R45 May cause cancer. R46 May cause heritable genetic damage. R60 May impair fertility. R61 May cause harm to the unborn child. H300 Fatal if swallowed. H317 May cause an allergic skin reaction. H340 May cause genetic defects. H350 May cause cancer. H360FD May damage fertility. May damage the unborn child.
Training information	Follow training instructions when handling this material.
Disclaimer	While the information and recommendations contained in this safety data sheet are believed to be correct at the time of issue, liability for its accuracy, adequacy or completeness is excluded to the maximum extent permissible by law and no express or implied warranty is given. This exclusion extends to liability for any statement, opinion or conclusion contained in or any omission from this safety data sheet (including its annexes and references) and for any other related written or oral communication. No representations or warranties are made for these statements, opinions or conclusions and the user must determine the correct and proper use of the material described in this safety data sheet.