1. IDENTIFICATION OF SUBSTANCE AND COMPANY DETAILS

1.1 Product Identifier

Product name:	Morpheus® III/ Morpheus® III HT-96
Product number:	MD1-116/MD1-117
EC No.	See section 3
REACH registration No.	See section 3
CAS No.:	See section 3

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

Identified uses	Research and development
Uses advised against	Not for drug, household or uses other than those identified

1.3 Details of the supplier of the Safety Datasheet

Supplier	Molecular Dimensions Limited
Address	The Innovation centre 217 Portobello Sheffield S1 4DP United Kingdom
Telephone:	+44 (0)11422 42257
Email address	enquiries@moleculardimensions.com

1.4 Emergency telephone number

Emergency phone number	999

2. HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H314	Causes severe skin burns and eye damage
H360D	May damage the unborn child
H335	May cause respiratory irritation
H360	May damage fertility or the unborn child
H351	Suspected of causing cancer
H361	One or more of the CLP statements could not be found.
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H411	Toxic to aquatic life with long-lasting effects
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H361fd	May damage fertility. Suspected of damaging the unborn child
H316	Causes mild skin irritation
H301	Toxic if swallowed
H312	Harmful in contact with skin
H332	Harmful if inhaled

2.2 Label elements

Labelling according to Regulation (EC) No. 1277/2008 [CLP]

Pictogram(s):

Hazard statement(s):

See section 2.1.

Precautionary statement(s):

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P305+P351+P338+P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician
P201	Obtain special instructions before use
P280	Wear protective gloves/protective clothing/eye protection/face protection
P310	Immediately call a POISON CENTER or doctor/physician
P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P308+P313	IF exposed or concerned: Get medical advice/attention
P281	Use personal protective equipment as required
H318	Causes serious eye damage
P273	Avoid release to the environment
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
P301+P312+P330	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

2.3 Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixtures

Chemical	EC No.	REACH No.	CAS No.	Concentration	P-code(s)	H-code(s)
BICINE	-	-	150-25-4	0.1M		
CHAPS	-	-	75621-03-3	1.2%w/v	P280	H316
CHAPSO	-	-	82473-24-3	1.2%w/v		
Choline chloride	200-655-4	-	67-48-1	1.5%w/v	P261, P305+P351+P338	H315, H319, H335
Ethylene glycol	203-473-3	-	107-21-1	20%v/v		H302

Chemical	EC No.	REACH No.	CAS No.	Concentration	P-code(s)	H-code(s)
Glycerol	200-289-5	-	56-81-5	20%v/v		
HEPES sodium salt	-	-	75277-39-3	0.1M		
Hexylene glycol	203-489-0	-	107-41-5	12.5%v/v	P305+P351+P338	H315, H319
Imidazole	206-019-2	01-2119485825-24-XXXX	288-32-4	0.1M	P201, P280, P305+P351+P338, P310	H302, H314, H360D
MES monohydrate	224-632-3	-	145224-94-8	0.1M	P261, P305+P351+P338	H315, H319, H335
MOPS	214-478-5	-	1132-61-2	0.1M	P261, P305+P351+P338	H315, H319, H335
Poly(ethylene glycol) 1000	500-038-2	-	25322-68-3	12.5%w/v		
Poly(ethylene glycol) 20000	500-038-2	-	25322-68-3	10%w/v		
Poly(ethylene glycol) 3350	500-038-2	-	25322-68-3	12.5%w/v		
Poly(ethylene glycol) 4000	500-038-2	-	25322-68-3	10%w/v		
Poly(ethylene glycol) 8000	500-038-2	-	25322-68-3	10%w/v		
Poly(ethylene glycol) methyl ether 500	-	-	9004-74-4	20%v/v		
Thymol	201-944-8	-	89-83-8	0.35%w/v	P273, P280, P305+P351+P338, P310	H302, H314, H411
Trizma® base	201-064-4	-	77-86-1	0.1M	P261, P305+P351+P338	H315, H319, H335
DL-Ala-DL-Ala	220-687-2		2867-20-1	1.6%w/v		
Ala-Gln			39537-23-0	1.6%w/v		
Gly-Glu			7412-78-4	1.6%w/v		
Gly-Ala	223-019-8		3695-73-6	1.6%w/v		
Gly-Asp	225-140-1		4685-12-5	1.6%w/v		
Gly-Sar	249-875-2		29816-01-1	1.6%w/v		
L-Carnosine	206-169-9		305-84-0	1.6%w/v		
Leu-Ala hydrate			7298-84-2	1.6%w/v		
(+)-Sodium-L-ascorbate	205-126-1		134-03-2	1.5%w/v		
D-Panthenol			81-13-0	1.5%v/v		
Pyridoxine hydrochloride	200-386-2		58-56-0	1.5%w/v		
Thiamine hydrochloride	200-641-8		67-03-8	1.5%w/v		
Cytidine			65-46-3	1%w/v		
Inosine			58-63-9	1%w/v		
Ribavirin			36791-04-5	1%w/v	P201, P308+P313	H360
Thymidine	200-070-4		50-89-5	1%w/v		
Uridine	200-407-5		58-96-8	1%w/v		
(-)-Menthol	218-690-9		2216-51-5	0.35%w/v		H315
Caffeic acid	206-361-2		331-39-5	0.35%w/v	P261, P281, P305+P351+P338	H315, H319, H335, H351, H361
D-(-)-Quinic acid	201-072-8		77-95-2	0.35%w/v		
Gallic acid monohydrate	205-749-9		5995-86-8	0.35%w/v		
N-Vanillylnonanamide	219-484-1		2444-46-4	0.35%w/v	P261, P280, P305+P351+P338	H315, H317, H319, H335
Shikimic acid	205-334-2		138-59-0	0.35%w/v	H318	P280, P305+P351+P338+P310
D-(-)-Salicin	205-331-6		138-52-3	0.25%w/v	P280	H317
Esculin hydrate	208-517-5		531-75-9	0.25%w/v		
Arbutin	207-850-3		497-76-7	0.25%w/v		
Quinine hemisulfate salt monohydrate			207671-44-1	0.25%w/v	P261, P305+P351+P338	H315, H319, H335
Tryptamine	200-510-5		61-54-1	0.25%w/v	P261, P305+P351+P338	H315, H319, H335
Ampicillin sodium salt	200-708-1		69-52-3	0.6%w/v	P261, P280, P342+P311	H317, H334
Apramycin sulfate salt	265-890-7		65710-07-8	0.6%w/v	P201, P308+P313	H360
Bacitracin	215-786-2		1405-87-4	0.6%w/v		
Dihydrostreptomycin sesquisulfate	226-823-7		5490-27-7	0.6%w/v	P280, P301+P312+P330	H302, H361fd
Gentamicin sulfate	215-778-9		1405-41-0	0.6%w/v	P261, P280, P342+P311	H317, H334
Spectinomycin dihydrochloride pentahydrate	244-554-3		22189-32-8	0.6%w/v		
Sodium glycocholate hydrate			338950-81-5	1.2%w/v		
Taurochlolic acid sodium salt hydrate			345909-26-4	1.2%w/v		
Lidocaine hydrochlorde monohydrate	200-803-8		6108-05-0	0.8%w/v	P301+P310	H301
Procaine hydrochloride	200-077-2		51-05-8	0.8%w/v	P280. P301+P310	H301, H317
Proparacaine hydrochloride	227-541-7		5875-06-9	0.8%w/v	P280, P305+P351+P338	H302, H312, H317, H319, H332
Tetracaine hydrochloride			136-47-0	0.8%w/v	P280, P301+P310, P305+P351+P338	H301, H317, H319

4. FIRST AID MEASURES

4.1 Description of first aid measures

General notes
Consult a doctor. Show this safety datasheet to the doctor in attendance.

Following inhalation
Move to fresh air. If not breathing, give artificial respiration. Consult a doctor.

Following skin contact
Wash off with soap & water. Consult a doctor. Take off contaminated clothing & shoes immediately.

Following eye contact
Flush eyes with water. Rinse thoroughly for at least 15 minutes. Consult a doctor.

Following ingestion
Rinse mouth with water. Consult a doctor. Do NOT induce vomiting.

Self-protection for first aider
Always use recommended PPE when treating patient.

4.2 Most important symptoms and effects, both acute and delayed

The most important known effects are detailed in section 2.2 and section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIRE-FIGHTING METHODS

5.1 Extinguishing media

Use water spray, alcohol resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides. Nitrogen oxides. Hydrogen chloride gas. Sodium oxides. Sulfur oxides. Hydrogen cyanide gas. Metal oxides.

5.3 Advice for firefighters
Wear breathing apparatus. Use water spray to cool unopened containers. Emits toxic fumes under fire conditions.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid breathing vapours. Use personal protective equipment including respiratory protection. Use personal protective equipment. Ensure adequate ventilation.

6.2 Environmental precautions
Do not let product enter drains

6.3 Methods and materials for containment and clean up
Use spill kit to contain spillage & use wet brushing to place in a suitable container for disposal. Do not flush with water. Evacuate personnel to safe areas.

6.4 Reference to any other sections
For disposal, see section 13

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
For precautions, see section 2.2

7.2 Conditions for safe storage, including any incompatibilities.
Store in cool place. Keep container tightly closed in well-ventilated place. Containers which are opened must be carefully resealed and stored upright to prevent leakage.

7.3 Specific end use
Apart from uses in Section 1.2, no other specific uses are stipulated.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Chemical	CAS No.	Country	Limit value		Basis
			STEL	TWA	
Ethylene glycol	107-21-1	UK	40 ppm	20 ppm	EH40 WEL - Workplace Exposure Limit
Glycerol	56-81-5	UK		10 mg/m^3	EH40 WEL - Workplace Exposure Limit
Hexylene glycol	107-41-5	UK	25 mg/m^3	25 mg/m^3	EH40 WEL - Workplace Exposure Limit

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Wash hands before work break and at the end of the day

8.2.2 Personal protection

Eye/face protection

Face shield & safety specs.

Skin Protection

Nitrile gloves (splash protection only) and lab coat

Respiratory protection

Use respirators and components tested and approved under appropriate government standards such as CEN (EU) as back up to engineering control

Environmental exposure controls

Do not let product enter drains

9. PHYSICAL AND CHEMICAL PROPERTIES

a) Appearance	Transparent liquid
b) Odour	No data available
c) Odour threshold	No data available
d) pH	No data available
e) Melting point / freezing point	No data available
f) Initial boiling point and boiling range	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability	No data available
j) Upper / lower flammability or exposure limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	No data available
n) Solubility(ies)	No data available
o) Partition coefficient: n-octanol / water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidising properties	No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity	No data available
10.2 Chemical stability	No data available
10.3 Possibility of hazardous reactions	No data available
10.4 Conditions to avoid	No data available
10.5 Incompatible materials	Strong oxidising agents, strong acids, strong bases
10.6 Hazardous decomposition materials	No data available. In case of fire see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

a) Acute toxicity	No data available
b) Skin corrosion / irritation	No data available
c) Serious eye damage / irritation	No data available
d) Respiratory or skin sensitization	No data available
e) Germ cell mutagenicity	No data available
f) Carcinogenicity	No data available
g) Reproductive toxicity	No data available
h) STOT - single exposure	No data available
i) STOT - repeated exposure	No data available

j) Aspiration hazard	No data available

11.2 Delayed and immediate effects as well as chronic effects from short to long term exposure

Symptoms

Burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting. Early symptoms of ingestion similar to drunkenness, leading to nausea, vomiting, abdominal pain, weakness, muscle tenderness, respiratory failure, convulsions, cardiovascular, collapse, pulmonary edema. Without treatment, death may occur in 2h to 24h. Long term affects include renal failure, brain and liver damage. Consumption of alcohol may increase toxic effects. Headache, nausea, vomiting. May cause kidney irregularities. Material is extremely destructive to mucous membranes & upper respiratory tract. Cough, shortness of breath, headache, nausea, vomiting. Prolonged or repeated exposure can cause; Blood disorders, vomiting, Diarrhoea. Central nervous system depression, Dizziness, Blurres vision, Tremors, Drowsiness, Convulsions, Unconsciousness.

12. ECOLOGICAL INFORMATION

12.1 Toxicity	No data available
12.2 Persistence and degradability	No data available
12.3 Bioaccumulative potential	No data available
12.4 Mobility in soil	No data available
12.5 Results of PBT and vPvB assessment	No data available
12.6 Other adverse effects	No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product / packaging disposal

Dispose of packaging as unused product. Offer surplus and non-recyclable solutions to a licensed disposal company.
Observe all EU and local environmental regulations

14. TRANSPORT INFORMATION

14.1 UN number

A.R.D./R.I.D.	3082	I.M.D.G.	3082	I.C.A.O.-T.I.	3082	A.D.N.	3082

14.2 UN proper shipping name

A.R.D./R.I.D.	Environmentally hazardous substance, liquid, n.o.s.	I.M.D.G.	Environmentally hazardous substance, liquid, n.o.s.
I.C.A.O.-T.I.	Environmentally hazardous substance, liquid, n.o.s.	A.D.N.	Environmentally hazardous substance, liquid, n.o.s.

14.3 Transport hazard class(es)

A.R.D./R.I.D.	9	I.M.D.G.	9	I.C.A.O.-T.I.	9	A.D.N.	9

14.4 Packaging group

A.R.D./R.I.D.	II	I.M.D.G.	II	I.C.A.O.-T.I.	II	A.D.N.	II

14.5 Environmental hazards

A.R.D./R.I.D.	Yes	I.M.D.G.	Yes	I.C.A.O.-T.I.	Yes	A.D.N.	Yes

14.6 Special precautions for user

A.R.D./R.I.D.	No data available	I.M.D.G.	No data available
I.C.A.O.-T.I.	No data available	A.D.N.	No data available

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations

No data available.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

16. OTHER INFORMATION

a) Changes since last revision

First issue

b) Key to any abbreviations used

PPE	Personal protective equipment
A.R.D./R.I.D.	International Carriage of Dangerous Goods by Road / Rail
I.M.D.G.	International Maritime Dangerous Goods
I.C.A.O.-T.I.	Technical Instructions for the Safe Transport of Dangerous Goods by Air
A.D.N.	International Carriage of Dangerous Goods by Inland Waterways
TWA	Time-weighted average
STEL	Short-term exposure limit

c) References and sources for data

sigma-aldrich.com

fishersci.co.uk

anatrace.com

d) Indication of methods used for classification (mixtures only)

No data available

e) List of Hazard and Precautionary phrase not listed in full in other sections

See Section 2.1.

f) Advice for training

Disclaimer:

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Molecular Dimensions Ltd., shall not be held liable for any damage resulting from handling or from contact with the above product.