1. IDENTIFICATION OF SUBSTANCE AND COMPANY DETAILS

1.1 Product Identifier

Product name:	MIDAS*plus*™ / MIDAS*plus*™ HT-96 / MIDAS*plus*™ FX-96
Product number:	MD1-106 / MD1-107 / MD1-107-FX
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]

EUH019	May form explosive peroxides
EUH032	Contact with acids liberates very toxic gas
H225	Highly flammable liquid & vapour
H226	Flammable liquid & vapour
H272	May intensify fire; oxidizer
H301	Toxic if swallowed
H302	Harmful if swallowed
H302+H312	Harmful if swallowed. Harmful in contact with skin
H311	Toxic in contact with skin
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation
H331	Toxic if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H351	Suspected of causing cancer
H360D	May damage the unborn child
H370	Causes damage to organs
H411	Toxic to aquatic life with long-lasting effects
H412	Harmful to aquatic life with long-lasting effects

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):

P201	Obtain special instructions before use
P210	Keep away from heat/sparks/open flames/hot surfaces – No smoking
P220	Keep/Store away from clothing/combustible materials
P260	Do not breathe dust/fume/gas/mist/vapours/spray
P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P264	Wash thoroughly after handling
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P303+P352	IF ON SKIN (or hair): Wash with soap and water
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P310	Immediately call a POISON CENTER or doctor/physician
P311	Call a POISON CENTER or doctor/physician
P321	Specific treatment
P332+P313	If skin irritation occurs: Get medical advice/attention
P362	Take off contaminated clothing and wash before reuse

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)
1-Butanol	200-751-6	-	71-36-3	10%v/v	P261, P280, P305+P351+P338	H226, H302, H315, H318, H335, H336
1-Propanol	200-746-9	-	71-23-8	10 - 15 %v/v	P210, P261, P280, P305+P351+P338	H225, H318, H336
Ammonium acetate	211-162-9	-	631-61-8	0.2M		
Ammonium chloride	235-186-4	-	12125-02-9	0.2M	P305+P351+P338	H302, H319
Ammonium formate	208-753-9	-	540-69-2	0.1 - 0.3 M	P261, P305+P351+P338	H315, H319, H335
Ammonium phosphate monobasic	231-764-5	-	7722-76-1	0.5M		
Ammonium sulfate	231-984-1	-	7783-20-2	0.2M		
BICINE	-	-	150-25-4	0.1M		
BIS-TRIS	230-237-7	-	6976-37-0	0.1M	P261, P305+P351+P338	H315, H319, H335
Calcium chloride dihydrate	233-140-8	-	10035-04-8	0.2M	P305+P351+P338	H319
Cesium chloride	231-600-2	-	7647-17-8	0.1%w/v		
Dimethyl sulfoxide	200-664-3	-	67-58-5	5 - 10 %v/v		
Ethanol	200-578-6	-	64-17-5	10 - 15 %v/v	P210	H225
Glycerol ethoxylate	500-075-4	-	31694-55-0	20 - 40 %v/v		
Glycine	200-272-2	-	56-40-6	0.1M		
HEPES	-	-	7365-45-9	0.1M		
Imidazole	206-019-2	01-2119485825-24-XXXX	288-32-4	0.2M	P201, P280, P305+P351+P338, P310	H302, H314, H360D
Jeffamine® ED-2003	-	-	65605-36-9	15 - 30 %w/v		
Jeffamine® M-600	-	-	83713-01-3	10 - 30 %v/v	P280, P305+P351+P338	H302+H312, H315, H319
Lithium acetate dihydrate	-	-	6108-17-4	0.1M		
Lithium citrate tribasic tetrahydrate	213-045-8	-	6080-58-6	0.1 - 0.2 M	P261, P305+P351+P338	H315, H319, H335
Lithium nitrate	232-218-9	-	7790-69-4	0.2M	P220	H272
Lithium sulfate	233-820-4	-	10102-25-7	0.06 - 0.1 M		H302
Magnesium chloride hexahydrate	-	-	7791-18-6	0.2M		
Magnesium formate dihydrate	-	-	6150-82-9	0.1M		
MES monohydrate	224-632-3	-	145224-94-8	0.1M	P261, P305+P351+P338	H315, H319, H335
Methanol	200-659-6	01-2119433307-44-XXXX	67-56-1	5%v/v	P210, P260, P280, P301+P310, P311	H225, H301, H311, H331, H370
Pentaerythritol ethoxylate (15/4 EO/OH)	500-071-2	-	30599-15-6	15 - 35 %v/v		
Pentaerythritol ethoxylate (3/4 EO/OH)	500-071-2	-	30599-15-6	3 - 35 %v/v		
Pentaerythritol proproxylate (5/4 PO/OH)	500-030-9	-	9051-49-4	15 - 50 %v/v		
Poly(acrylic acid sodium salt) 2100	-	-	9003-04-7	5 - 45 %w/v	P305+P351+P338	H319
Poly(acrylic acid sodium salt) 5100	-	-	9003-04-7	20 - 30 %w/v	P305+P351+P338	H319
Poly(acrylic acid-co-maleic acid) solution	-	-	-	8 - 28 %v/v	P280, P305+P351+P338, P310	H314
Poly(ethylene glycol) 4000	500-038-2	-	25322-68-3	10 - 20 %w/v		
Poly(ethylene glycol) methyl ether 5000	-	-	9004-74-4	25%w/v		
Poly(ethyleneimine) solution (~50% in water)	-	-	9002-98-6	3 - 28 %v/v	P273	H302, H411
Poly(propylene glycol) bis(2-aminopropyl ether) 2000	-	-	9046-10-0	6 - 40 %v/v	P273, P280, P305+P351+P338, P310	H302, H314, H412
Poly(propylene glycol) bis(2-aminopropyl ether) 230	-	-	9046-10-0	10 - 30 %v/v	P273, P280, P305+P351+P338, P310	H314, H412
Poly(propylene glycol) bis(2-aminopropyl ether) 400	-	-	9046-10-0	15 - 30 %v/v	P273, P280, P305+P351+P338, P310	H302+H312, H314, H412
Poly(vinyl alcohol)	-	-	9002-89-5	8%w/v		
Polypropylene glycol 400	500-039-8	-	25322-69-4	10 - 60 %v/v		
Polyvinylpyrrolidone	-	-	9003-39-8	6 - 30 %w/v		
Potassium acetate	204-822-2	-	127-08-2	0.2M		
Potassium chloride	231-211-8	-	7447-40-7	0.1 - 0.2 M		
Potassium citrate tribasic monohydrate	-	-	6100-05-6	0.2M		
Potassium phosphate monobasic	231-913-4	-	7778-77-0	0.1M		
Sodium chloride	231-598-3	-	7647-14-5	0.1 - 0.5 M		
Sodium formate	205-488-0	-	141-53-7	0.1M		
Sodium malonate dibasic monohydrate	-	-	26522-85-0	0.1 - 0.2 M		
Sodium phosphate dibasic dihydrate	-	-	10028-24-7	0.1M		
Sodium sulfate	231-820-9	-	7757-82-6	0.1 - 0.2 M		
Sodium tartrate dibasic dihydrate	-	-	6106-24-7	0.1M		
Sodium thiocyanate	208-754-4	-	540-72-7	0.2M	P273, P280	H302, H312, H332, H412, EUH032
SOKALAN® CP 42	-	-	-	10 - 30 %w/v		
SOKALAN® CP 45				20 - 40 %w/v		
SOKALAN® CP 5	-	-	-	15 - 25 %w/v		
SOKALAN® CP 7	-	-	-	20 - 25 %w/v		
SOKALAN® HP 56	-	-	29297-550	20 - 25 %w/v	P264, P280, P303+P352, P332+P313, P321, P362	H315
SOKALAN® PA 25 CL				20 - 25 %w/v		
Tetrahydrofuran	203-726-8	-	109-99-9	10%v/v	P210, P261, P305+P351+P338	H225, H319, H335, H351, EUH019
Trizma® base	201-064-4	-	77-86-1	0.1M	P261, P305+P351+P338	H315, H319, H335

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

Following ingestion
Do NOT induce vomiting. Rinse mouth with water. Consult a doctor. Seek immediate medical attention.

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. Use dry chemical powder.

5.2 Special hazards arising from the substance or mixture
Carbon oxides. Nitrogen oxides. Hydrogen chloride gas. Phosphorous oxides. Sulfur oxides. Calcium oxides. Cesium oxides. Hydrogen cyanide gas. Lithium oxides. Magnesium oxides. Sodium oxides. Metal oxides. Potassium oxides.

5.3 Advice for firefighters
Wear breathing apparatus. Use water spray to cool unopened containers. Fight fire remotely due to risk of explosion. Emits toxic fumes under fire conditions.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment including respiratory protection. Avoid breathing vapours. Use personal protective equipment. Evacuate personnel to safe areas.

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. Remove all sources of ignition. 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	
1-Propanol	71-23-8	UK	250 ppm	200 ppm	EH40 WEL - Workplace Exposure Limit
Ammonium chloride	12125-02-9	UK		10 ppm	EH40 WEL - Workplace Exposure Limit
Ethanol	64-17-5	UK		1000 mg/m^3	EH40 WEL - Workplace Exposure Limit
Methanol	67-56-1	UK	250 mg/m^3	200 mg/m^3	EH40 WEL - Workplace Exposure Limit
Poly(acrylic acid-co-maleic acid) solution	-	UK	2 mg/m^3	1 mg/m^3	EH40 WEL - Workplace Exposure Limit
Tetrahydrofuran	109-99-9	UK	100 ppm	50 ppm	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

Drying/cracking of skin, skin irritation. Central nervous system depression, narcosis, skin irritation. Nausea, headache, fatigue. Central nervous system depression, narcosis, damage to heart. Material is extremely destructive to mucous membranes & upper respiratory tract. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Cough, shortness of breath, headache, and nausea. Nausea, dizziness, headache. Dizziness, procrastination, can cause kidney damage if sodium intake is limited. Dehydration, weight loss, dermatological effects, thyroid disturbances. Central nervous system effects including: blurred vision, sensory loss, slurred speech, ataxia, convul. Diarrhoea, vomiting, neuromuscular effects such as tremors, clonus, hyperactive reflexes. Blurred vision, sensory loss, slurred speech, ataxia, convulsions. Diarrhoea, vomiting, neuromuscular effects such as tremors, clonus, hyperactive reflexes. Can be fatal or cause blindness. Ingestion effects include: headache, dizziness, drowsiness, metabolic acidosis, coma, seizures. Delayed symptoms include kidney & liver damage. Attacks central nervous system, affects breathing. Gastrointestinal disturbance. Material is extremely destructive to mucous membranes & upper respiratory tract, skin & eyes. Spasm, inflammation & edema of larynx & bronchi. Pneumonitis, pulmonary edema, burning sensation, cough, wheezing, laryngitis, shortness of breath, headache & nausea. Vomiting, diarrhoea, dehydration, congestion in internal organs. Inflammatory reactions in gastrointestinal tract. Nausea, headache, vomiting. Central nervous system depression. Cough, chest pain, difficulty breathing. Anaesthetic effects. Burning sensation, shortness of breath, cough, wheezing, laryngitis, and headache. Dizziness, procrastination, can cause kidney damage if sodium intake is limited. Dehydration, weight loss, dermatological effects, thyroid disturbances. Central nervous system effects including: blurred vision, sensory loss, slurred speech, ataxia, convulsions. Diarrhoea, vomiting, neuromuscular effects such as tremors, clonus, hyperactive reflexes.

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.