1. IDENTIFICATION OF SUBSTANCE AND COMPANY DETAILS

1.1 Product Identifier

Product name:	The Kryos Screen / The Kryos Screen HT-96
Product number:	MD1-133 / MD1-134
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	Calibre Scientific UK Unit 5a, R-evolution The Advanced Manufacturing Park Selden Way Rotherham S60 5XA 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]

H225	Highly flammable liquid & vapour
H318	Causes serious eye damage
H336	May cause drowsiness or dizziness
H319	Causes serious eye irritation
H302	Harmful if swallowed
H335	May cause respiratory irritation
H315	Causes skin irritation
H301	Toxic if swallowed
H330	Fatal if inhaled
H340	May cause genetic defects
H350	May cause cancer
H360	May damage fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H410	Very toxic to aquatic life with long-lasting effects
H373	May cause damage to organs through prolonged or repeated exposure
H314	Causes severe skin burns and eye damage
H360D	May damage the unborn child
H312	Harmful in contact with skin
H332	Harmful if inhaled
H412	Harmful to aquatic life with long-lasting effects
EUH032	Contact with acids liberates very toxic gas
H400	Very toxic to aquatic life
H272	May intensify fire; oxidizer

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):

P210	Keep away from heat/sparks/open flames/hot surfaces – No smoking
P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P280	Wear protective gloves/protective clothing/eye protection/face protection
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P370+P378	In case of fire: Use appropriate media for extinction
P403+P235	Store in a well ventilated place. Keep cool
P301+P312+P330	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth
P302+P352	IF ON SKIN: Wash with soap and water
P337+P313	If eye irritation persists get medical advice/attention
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P312	Call a POISON CENTER or doctor/physician if you feel unwell
P332+P313	If skin irritation occurs: Get medical advice/attention
P201	Obtain special instructions before use
P260	Do not breathe dust/fume/gas/mist/vapours/spray
P273	Avoid release to the environment
P284	Wear respiratory protection
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P310	Immediately call a POISON CENTER or doctor/physician
P264	Wash thoroughly after handling
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P308+P313	IF exposed or concerned: Get medical advice/attention
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P220	Keep/Store away from clothing/combustible materials
P221	Take any precaution to avoid mixing with combustibles

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-Propanol	200-746-9	-	71-23-8	12%v/v	P210, P261, P280, P305+P351+P338	H225, H318, H336
2-Propanol	200-661-7	01-2119457558-25-XXXX	67-63-0	10%v/v	P210, P305+P351+P338, P370+P378, P403+P235	H225, H319, H336
ADA	247-530-0	01-2120760179-48-0003	26239-55-4	0.1M		
Ammonium chloride	235-186-4	01-2119489385-24-XXXX	12125-02-9	0.2M	P305+P351+P338, P301+P312+P330	H302, H319
Ammonium citrate dibasic	221-146-3	-	3012-65-5	0.2M	P261, P305+P351+P338	H319, H335
Ammonium phosphate dibasic	231-987-8	-	7783-28-0	1M		
Ammonium sulfate	231-984-1	-	7783-20-2	0.15 - 0.2 M		
BICINE	205-755-1	-	150-25-4	0.1M		
BIS-TRIS	230-237-7	-	6976-37-0	0.1M	P302+P352, P337+P313, P304+P340, P312, P280, P332+P313	H315, H319, H335
BIS-TRIS propane	264-899-3	-	64431-96-5	0.1M		
Cadmium sulfate 8/3-hydrate	233-331-6	01-2119487964-18-XXXX	7790-84-3	0.05M	P201, P260, P273, P284, P301+P310, P310	H301, H330, H340, H350, H360, H372, H410
Calcium chloride dihydrate	233-140-8	-	10035-04-8	0.2M	P305+P351+P338	H319
Citric acid	201-069-1	01-2119457026-42-XXXX	77-92-9	0.1M	P305+P351+P338	H319
DL-Malic acid	230-022-8	-	6915-15-7	0.15M	P280, P305+P351+P338, P337+P313	H319
Ethanol	200-578-6	01-2119457610-43	64-17-5	20 - 40 %v/v	P210, P264, P280, P303+P361+P353, P337+P313	H225, H319
Ethylene glycol	203-473-3	01-2119456816-28-XXXX	107-21-1	8%v/v	P280, P301+P310	H302, H373
Glycerol	200-289-5	-	56-81-5	25%v/v		
Glycine	200-272-2	01-2119864796-18-XXXX	56-40-6	0.1M		
HEPES	230-907-9	-	7365-45-9	0.1M		
HEPES sodium salt	278-169-7	-	75277-39-3	0.1M		
Hexylene glycol	203-489-0	01-2119539582-35-XXXX	107-41-5	25%v/v	P280, P305+P351+P338, P337+P313	H315, H319
Imidazole	206-019-2	01-2119485825-24-XXXX	288-32-4	0.1M	P201, P260, P280, P303+P361+P353, P305+P351+P338, P308+P313	H302, H314, H360D
Jeffamine® ED-2003	-	-	65605-36-9	0.5%w/v		
Lithium sulfate	233-820-4	-	10377-48-7	0.1 - 0.2 M	P280, P301+P312, P305+P351+P338	H302, H319
Magnesium acetate tetrahydrate	205-554-9	-	16674-78-5	0.1M		
Magnesium chloride hexahydrate	232-094-6	-	7791-18-6	0.1 - 0.2 M		
MES monohydrate	224-632-3	-	145224-94-8	0.1M		
Poly(ethylene glycol) 1000	500-038-2	-	25322-68-3	5%w/v		
Poly(ethylene glycol) 10000	500-038-2	-	25322-68-3	10%w/v		
Poly(ethylene glycol) 1500	500-038-2	-	25322-68-3	25%w/v		
Poly(ethylene glycol) 20000	500-038-2	-	25322-68-3	8 - 12 %w/v		
Poly(ethylene glycol) 3350	500-038-2	-	25322-68-3	20 - 25 %w/v		
Poly(ethylene glycol) 400	500-038-2	-	25322-68-3	25%v/v		
Poly(ethylene glycol) 4000	500-038-2	-	25322-68-3	10 - 20 %w/v		
Poly(ethylene glycol) 6000	500-038-2	-	25322-68-3	8 - 20 %w/v		
Poly(ethylene glycol) 8000	500-038-2	-	25322-68-3	8 - 20 %w/v		
Poly(ethylene glycol) methyl ether 5000	-	-	9004-74-4	10 - 20 %w/v		
Potassium bromide	231-830-3	-	7758-02-3	0.25M	P280, P305+P351+P338, P337+P313	H319
Potassium chloride	231-211-8	01-2119539416-36-XXXX	7447-40-7	0.1M		
Potassium citrate tribasic monohydrate	-	-	6100-05-6	0.2M		
Potassium formate	209-677-9	-	590-29-4	0.2M		
Potassium phosphate dibasic	231-834-5	-	7758-11-4	0.02M		
Potassium phosphate monobasic	231-913-4	01-2119490224-41-XXXX	7778-77-0	0.02M		
Potassium thiocyanate	206-370-1	-	333-20-0	0.2M	P273, P280	H302, H312, H332, H412, EUH032
Sodium acetate trihydrate	204-823-8	01-2119485123-42-XXXX	6131-90-4	0.1 - 1 M		
Sodium bromide	231-599-9	-	7647-15-6	0.2M		
Sodium chloride	231-598-3	01-2119485491-33-XXXX	7647-14-5	0.1 - 0.2 M		
Sodium citrate tribasic dihydrate	200-675-3	01-2119457027-40-XXXX	6132-04-3	0.1 - 0.2 M		
Sodium iodide	231-679-3	-	7681-82-5	0.2M	P273, P280, P305+P351+P338	H315, H319, H400
Sodium malonate dibasic monohydrate	-	-	26522-85-0	0.2 - 1.1 M		

Chemical	EC No.	REACH No.	CAS No.	Concentration	P-code(s)	H-code(s)
Sodium phosphate dibasic dihydrate	231-448-7	-	10028-24-7	0.1M		
Sodium phosphate monobasic monohydrate	231-449-2	01-2119489796-13-0045	10049-21-5	0.1M		
Sodium thiocyanate	208-754-4	-	540-72-7	0.2M	P273, P280	H302, H312, H332, H412, EUH032
Succinic acid	203-740-4	01-2119896114-34-XXXX	110-15-6	0.1M	P280, P305+P351+P338	H318
Trizma® base	201-064-4	01-2119957659-16-0024	77-86-1	0.1M		
Poly(ethylene glycol) methyl ether 550	-	-	9004-74-4	8%v/v		
Potassium nitrate	231-818-8		7757-79-1	0.2M	P210, P220, P221, P370+P378	H272

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.

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. Cadmium oxides. Calcium oxides. Sodium oxides. Hydrogen cyanide gas. Lithium oxides. Magnesium oxides. Potassium oxides. Hydrogen bromide gas. Metal oxides.

5.3 Advice for firefighters

Wear breathing apparatus. Use water spray to cool unopened containers.

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.

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
2-Propanol	67-63-0	UK	500 ppm	400 ppm	EH40 WEL - Workplace Exposure Limit
Ammonium chloride	12125-02-9	UK	20 mg/m^3	10 mg/m^3	EH40 WEL - Workplace Exposure Limit
Cadmium sulfate 8/3-hydrate	7790-84-3	UK		0.025 mg/m^3	EH40 WEL - Workplace Exposure Limit
Ethanol	64-17-5	UK	3000 ppm	1000 ppm	EH40 WEL - Workplace Exposure Limit
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 ppm	25 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

Central nervous system depression, narcosis, skin irritation. Central nervous system depression, nausea, headache, vomiting, drowsiness. Overexposure could cause mild, reversible liver effects. Inhalation of fumes causes 'metal-fume fever': flu-like symptoms, weakness, headache, chills, nausea, vomiting, dizziness, sweating, muscular pain, cough, difficulty breathing. First chronic effect after exposure is kidney damage (anemia, teeth discoloura. Causes bone disease & pulmonary emphysema. Ingestion causes: headache, diarrhoea, muscular weakness, seizures, liver injury, kidney injury. Vomiting, diarrhoea, damage to tooth enamel, dermatitis. Burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting. Central nervous system depression, narcosis, damage to heart. 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. 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. Diarrhea, vomiting, neuromuscular effects such as tremors, clonus, hyperactive reflexes. Sedation. Vomiting, diarrhoea, dehydration, congestion in internal organs. Inflammatory reactions in gastrointestinal tract. Prolonged exposure to iodides may produce iodism. Symptoms include: skin rash, running nose, headache, irritation of mucous membrane. Sever cases: pimples, boils, hives, blisters, black & blue spots. Iodides readily diffuse across the placenta & can cause neonatal death. Known to cause drug-induced fevers for short periods. Nausea, headache, vomiting. Absorption into body leads to formation of methemoglobin which causes cyanosis.

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.AO.-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

c) References and sources for data
sigmaaldrich.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.