

## 1. IDENTIFICATION OF SUBSTANCE AND COMPANY DETAILS

### 1.1 Product Identifier

|                        |  |
|------------------------|--|
| Product name:          | SG1 Screen / SG1 Screen HT-96 / SG1 Screen FX-96 |
| Product number:        | MD1-88 / MD1-89 / MD1-89-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<br>217 Portobello<br>Sheffield<br>S1 4DP<br>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]

|        |  |
|--------|--|
| EUH032 | Contact with acids liberates very toxic gas          |
| H225   | Highly flammable liquid & vapour                     |
| H272   | May intensify fire; oxidizer                         |
| H301   | Toxic if swallowed                                   |
| H302   | Harmful if swallowed                                 |
| 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                    |
| H360D  | May damage the unborn child                          |
| H410   | Very 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   |
| P261           | Avoid breathing dust/fume/gas/mist/vapours/spray  |
| 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  |
| 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  |
| P501           | Dispose of contents/container according to instructions on SDS  |

### 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)              |
|---------------------------|-----------|-----------|--------------|---------------|----------------------------|------------------------|
| 2-Propanol                | 200-661-7 | -         | 603-117-00-0 | 10%w/v        | P210, P261, P305+P351+P338 | H225, H319, H336       |
| Ammonium chloride         | 235-186-4 | -         | 12125-02-9   | 0.2M          | P305+P351+P338             | H302, H319             |
| Ammonium citrate tribasic | 222-394-5 | -         | 3458-72-8    | 60%w/v        | P261, P305+P351+P338       | H315, H319, H335       |
| Ammonium fluoride         | 235-185-9 | -         | 12125-01-8   | 0.2M          | P261, P280, P301+P310      | H301, H311, H331       |
| Ammonium formate          | 208-753-9 | -         | 540-69-2     | 0.2M          | P261, P305+P351+P338       | H315, H319, H335       |
| Ammonium iodide           | 234-717-7 | -         | 12027-06-4   | 0.2M          | P261, P305+P351+P338       | H315, H319, H335       |
| Ammonium nitrate          | 229-347-8 | -         | 6484-52-2    | 0.2M          | P220, P261, P305+P351+P338 | H272, H315, H319, H335 |
| Ammonium sulfate          | 231-984-1 | -         | 7783-20-2    | 0.2 - 2 M     |                            |                        |

| Chemical                                | EC No.    | REACH No.             | CAS No.     | Concentration | P-code(s)                         | H-code(s)                      |
|---|-----------|-----------------------|-------------|---------------|-----------------------------------|--------------------------------|
| Ammonium tartrate dibasic               | -         | -                     | 3164-29-2   | 0.2M          |                                   |                                |
| 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  | 0.02 - 0.2 M  | P305+P351+P338                    | H319                           |
| CHES                                    | 203-115-6 | -                     | 103-47-9    | 0.1M          | P305+P351+P338                    | H319                           |
| DL-Malic acid                           | 230-022-8 | -                     | 6915-15-7   | 60%w/v        | P261, P280, P305+P351+P338        | H302, H315, H318, H335         |
| HEPES sodium salt                       | -         | -                     | 75277-39-3  | 0.1M          |                                   |                                |
| Hexylene glycol                         | 203-489-0 | -                     | 107-41-5    | 30%w/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              |
| Lithium citrate tribasic tetrahydrate   | 213-045-8 | -                     | 6080-58-6   | 0.2M          | P261, P305+P351+P338              | H315, H319, H335               |
| Lithium sulfate                         | 233-820-4 | -                     | 10102-25-7  | 0.2 - 1.5 M   |                                   | H302                           |
| Magnesium acetate tetrahydrate          | -         | -                     | 16674-78-5  | 0.2M          |                                   |                                |
| Magnesium chloride hexahydrate          | -         | -                     | 7791-18-6   | 0.2M          |                                   |                                |
| Magnesium formate dihydrate             | -         | -                     | 6150-82-9   | 0.2M          |                                   |                                |
| Magnesium sulfate heptahydrate          | -         | -                     | 10034-99-8  | 1.6M          |                                   |                                |
| MES monohydrate                         | 224-632-3 | -                     | 145224-94-8 | 0.1M          | P261, P305+P351+P338              | H315, H319, H335               |
| Poly(ethylene glycol) 10000             | 500-038-2 | -                     | 25322-68-3  | 17 - 20 %w/v  |                                   |                                |
| Poly(ethylene glycol) 1500              | 500-038-2 | -                     | 25322-68-3  | 25 - 30 %w/v  |                                   |                                |
| Poly(ethylene glycol) 20000             | 500-038-2 | -                     | 25322-68-3  | 12%w/v        |                                   |                                |
| Poly(ethylene glycol) 3000              | 500-038-2 | -                     | 25322-68-3  | 20%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  | 2 - 30 %v/v   |                                   |                                |
| Poly(ethylene glycol) 4000              | 500-038-2 | -                     | 25322-68-3  | 8 - 30 %w/v   |                                   |                                |
| Poly(ethylene glycol) 6000              | 500-038-2 | -                     | 25322-68-3  | 60%w/v        |                                   |                                |
| Poly(ethylene glycol) 8000              | 500-038-2 | -                     | 25322-68-3  | 10 - 30 %w/v  |                                   |                                |
| Poly(ethylene glycol) methyl ether 2000 | -         | -                     | 9004-74-4   | 30%w/v        |                                   |                                |
| Poly(ethylene glycol) methyl ether 5000 | -         | -                     | 9004-74-4   | 20 - 30 %w/v  |                                   |                                |
| Poly(ethylene glycol) methyl ether 550  | -         | -                     | 9004-74-4   | 25%w/v        |                                   |                                |
| Potassium nitrate                       | 231-818-8 | -                     | 7757-79-1   | 0.2M          |                                   |                                |
| Potassium sodium tartrate tetrahydrate  | -         | -                     | 6381-59-5   | 0.2M          |                                   |                                |
| Potassium thiocyanate                   | 206-370-1 | -                     | 333-20-0    | 0.1 - 0.2 M   | P273, P280                        | H302, H312, H332, H412, EUH032 |
| Sodium acetate trihydrate               | -         | -                     | 6131-90-4   | 0.1 - 0.2 M   |                                   |                                |
| Sodium cacodylate trihydrate            | 204-708-2 | -                     | 6131-99-3   | 0.1M          | P261, P273, P301+P310, P311, P501 | H301, H410, H331               |
| Sodium chloride                         | 231-598-3 | -                     | 7647-14-5   | 0.1 - 4.3 M   |                                   |                                |
| Sodium citrate tribasic dihydrate       | -         | -                     | 6132-04-3   | 0.1 - 1.6 M   |                                   |                                |
| Sodium fluoride                         | 231-667-8 | -                     | 7681-49-4   | 0.2M          | P301+P310, P305+P351+P338         | H301, H315, H319, EUH032       |
| Sodium formate                          | 205-488-0 | -                     | 141-53-7    | 0.2 - 4 M     |                                   |                                |
| Sodium malonate dibasic monohydrate     | -         | -                     | 26522-85-0  | 0.2 - 1.4 M   |                                   |                                |
| Sodium sulfate                          | 231-820-9 | -                     | 7757-82-6   | 0.2M          |                                   |                                |
| Sodium tartrate dibasic dihydrate       | -         | -                     | 6106-24-7   | 0.2M          |                                   |                                |
| Sodium thiocyanate                      | 208-754-4 | -                     | 540-72-7    | 0.2M          | P273, P280                        | H302, H312, H332, H412, EUH032 |
| Succinic acid                           | 203-740-4 | -                     | 110-15-6    | 60%w/v        | P261, P280, P305+P351+P338        | H315, H318, H335               |
| Trizma® base                            | 201-064-4 | -                     | 77-86-1     | 0.1M          | P261, P305+P351+P338              | H315, H319, H335               |
| Zinc sulfate heptahydrate               | 231-793-3 | -                     | 7446-20-0   | 0.01M         | P273, P280, P305+P351+P338, P501  | H302, H318, H410               |

#### 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. Hydrogen chloride gas. Nitrogen oxides. Sulfur oxides. Sodium oxides. Hydrogen cyanide gas. Lithium oxides. Magnesium oxides. Potassium oxides. Arsenic oxides. Hydrogen fluoride gas. Zinc oxides. 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                   |                                     |
| 2-Propanol                   | 603-117-00-0 | UK      | 500 ppm              | 400 ppm               | EH40 WEL - Workplace Exposure Limit |
| Ammonium chloride            | 12125-02-9   | UK      |                      | 10 ppm                | EH40 WEL - Workplace Exposure Limit |
| Ammonium fluoride            | 12125-01-8   | UK      |                      | 2.5 mg/m <sup>3</sup> | EH40 WEL - Workplace Exposure Limit |
| Hexylene glycol              | 107-41-5     | UK      | 25 mg/m <sup>3</sup> | 25 mg/m <sup>3</sup>  | EH40 WEL - Workplace Exposure Limit |
| Potassium thiocyanate        | 333-20-0     | UK      |                      | 5 mg/m <sup>3</sup>   | EH40 WEL - Workplace Exposure Limit |
| Sodium cacodylate trihydrate | 6131-99-3    | UK      |                      | 0.1 mg/m <sup>3</sup> | EH40 WEL - Workplace Exposure Limit |
| Sodium fluoride              | 7681-49-4    | UK      |                      | 2.5 mg/m <sup>3</sup> | 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, nausea, headache, vomiting, drowsiness. Overexposure could cause mild, reversible liver effects. Burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting. Material is extremely destructive to mucous membranes & upper respiratory tract. Dizziness, prostration, 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. Headache, nausea, vomiting. Drowsiness, tremors, convulsions. Vomiting, diarrhoea, dehydration, congestion in internal organs. Inflammatory reactions in gastrointestinal tract. Damage to lungs. Nausea, headache, vomiting. Irritating to respiratory tract. Can cause oxide Phosphorous oxides dermatitis. Metallic taste, marked thirst, coughing, fatigue, weakness, muscular pain, nausea followed by fever & chills. Bronchitis/pneumonia with blueish tint to skin, burning sensation. Shortness of breath, headache, vomiting, airway resistance, cardiovascular effects, pulmonary edema, congestive heart failure. Prolonged exposure to iodides may produce iodism. Salivation, nausea, vomiting, fever. Material is extremely destructive to mucous membranes & upper respiratory tract. 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.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.