Section 1 IDENTIFICATION OF SUBSTANCE / PREPARATION AND OF THE COMPANY

1.1 Product identifier
Oxygen generator (ROG)

1.2 Relevant use(s)/misuse(s)
A source of oxygen for life support or industrial applications

1.3 SDS supplier
Molecular Products Ltd, Parkway, Harlow Business Park, Harlow, Essex, CM19 5FR, UK

1.4 Emergency contact (global)
+44 (0) 1279 445111 (office hours) / +44 (0)1865 407333 (24 hour emergency number, English speaking) sds@molprod.com (email)

Emergency contact (other)
China: 400 120 6011, China (NRCC): +86 532 8388 9090, Mexico: +52 555 004 8763, Chile: +56 225 829 336, Brazil: +55 11 3197 5891

Section 2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008 (CLP/GHS)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Hazard statement(s)</th>
<th>Precautionary statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>O x Sol 1</td>
<td>H271 May cause fire or explosion; strong oxidiser</td>
<td>P220 Keep/store away from organic and combustible materials.</td>
</tr>
<tr>
<td>Acute Tox. 4</td>
<td>H302 Harmful if swallowed</td>
<td>P270 Do not eat, drink or smoke when using this product</td>
</tr>
<tr>
<td></td>
<td>H411 Toxic to aquatic life with long lasting effects</td>
<td>P273 Avoid release to the environment</td>
</tr>
</tbody>
</table>

2.1.2 Additional information – see section 16 for full text of H statements

2.2 LABELLING ELEMENTS

2.2.1 Labelling in accordance with EC Regulation No 1272/2008 (CLP/GHS)

<table>
<thead>
<tr>
<th>Hazard statements</th>
<th>Pictogram(s)</th>
<th>Signal word</th>
<th>Precautionary statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>H271</td>
<td>![H271]</td>
<td>DANGER</td>
<td>P220 Keep/store away from organic and combustible materials.</td>
</tr>
<tr>
<td>H302</td>
<td>![H302]</td>
<td></td>
<td>P270 Do not eat, drink or smoke when using this product</td>
</tr>
<tr>
<td>H411</td>
<td>![H411]</td>
<td></td>
<td>P273 Avoid release to the environment</td>
</tr>
</tbody>
</table>

2.3 Other hazards
None known

Section 3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical characterisation
Mixture of inorganic substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No</th>
<th>EINECS/ELINCS</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Chlorate</td>
<td>7775-09-9</td>
<td>231-887-4</td>
<td>CLP: Ox Sol. 1 H271, Acute Tox. 4 H302 Aquatic Chronic 2 H411</td>
<td>&gt;85%</td>
</tr>
<tr>
<td>Barium Peroxide</td>
<td>1403-29-6</td>
<td>215-218-4</td>
<td>CLP: Ox Sol. 2 H272 Acute Tox. 4 H332 Acute Tox. 4 H302</td>
<td>&lt;4%</td>
</tr>
<tr>
<td>Phosphorous (red)</td>
<td>7723-14-0</td>
<td>231-768-7</td>
<td>CLP: Flam Sol. 1 H228 Aquatic Chronic 3 H412</td>
<td>&lt;0.1%</td>
</tr>
</tbody>
</table>
Section 4  FIRST AID MEASURES

4.1 Description of measures

Inhalation  Remove casualty to fresh air and provide warmth and rest

Skin contact  Clean areas of skin affected immediately with soap and plenty of water. If necessary, seek medical advice

Eye contact  Immediately wash out eye thoroughly with plenty of water until irritation subsides. If necessary, consult an eye specialist/opthalmologist

Ingestion  If swallowed, do NOT induce vomiting. Drink plenty of water and, if necessary, seek medical advice

4.2 Most important effects/symptoms  None known

4.3 Immediate/special treatment  Treatment as described above

Section 5  FIRE FIGHTING MEASURES

5.1 Extinguishing media  Flood with water. Do NOT use foam

5.2 Special hazards  Liberates oxygen if treated above 300°C. May cause fire or an explosion if in contact with combustible materials

5.3 Advice for fire fighters  Self-contained breathing apparatus may be required. Use water spray to cool fire-exposed containers

Section 6  ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions  Adhere to personal protective measures

6.2 Environmental precautions  Do not allow to get into waste water or waterways; if this occurs, inform the relevant water authority at once

6.3 Methods and materials for cleaning up  In the event of spillage, take up large and small fragments mechanically (e.g. sweep or vacuum up, small fragments being first treated with damp sand) into tightly closed containers. Adhere to personal protective measures. Label container and dispose of as prescribed. Do NOT sweep up dry dust (possibility of explosion)

6.4 Reference to other sections  See section 8 for personal protective equipment

Section 7  HANDLING AND STORAGE

7.1 Precautions for safe handling  Handle in accordance with good hygiene and safety practice. Avoid the raising and deposition of dust

7.2 Conditions for safe storage  Ensure adequate ventilation of the storage area. Keep containers tightly closed, cool and dry, avoiding direct sunlight and away from organic combustible materials and strong acids

7.3 Specific end use(s)  See section 1.2

Section 8  EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Workplace Exposure Limits (WELs) have been assigned by the HSE (EH40/2005)

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Measurement</th>
<th>Limit</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA (8 hours)</td>
<td>ppm</td>
<td>0.5</td>
<td>mg/m³</td>
</tr>
<tr>
<td>TWA (8 hours)</td>
<td>ppm</td>
<td>0.1</td>
<td>mg/m³</td>
</tr>
<tr>
<td>STEL (15 mins)</td>
<td>ppm</td>
<td>0.3</td>
<td>mg/m³</td>
</tr>
</tbody>
</table>

8.2 Exposure controls  Provide adequate ventilation (e.g. local exhaust ventilation)

Personal protection  Observe normal standards for handling chemicals, Wash hands before breaks and after work, Avoid contact with skin and eyes. Avoid inhalation of dust if raised, Wear personal protective equipment appropriate to the task (see below)

Eye protection  Safety goggles if risk of eye contamination

Skin protection  Rubber gloves (consider your own risk assessment, e.g. breakthrough times, rates of diffusion and degradation, tasks undertaken)

Respiratory protection  Approved dust mask or respirator (e.g. EN 149:2001 FFP3) for dust if ventilation is insufficient

Other protection  Protective overalls

Section 9  PHYSICAL AND CHEMICAL PROPERTIES

9.1 Basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical form</td>
<td>Solid</td>
</tr>
<tr>
<td>Colour</td>
<td>Grey</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless</td>
</tr>
<tr>
<td>pH</td>
<td>Not determined</td>
</tr>
<tr>
<td>Boiling pt/range</td>
<td>Not determined. Decomposes at approx. 300°C</td>
</tr>
<tr>
<td>Melting pt/range</td>
<td>Approx. 200°C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative density</td>
<td>2.0g/cm³</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Partial</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
### Section 10 STABILITY AND REACTIVITY

10.1 Reactivity
- Can burn with exploding violence if in contact with fuels or organic material

10.2 Chemical stability
- Stable under normal conditions of handling

10.3 Hazardous reactions
- Decomposes to form oxygen on heating or ignition (friction or impact can cause ignition)

10.4 Conditions to avoid
- Contact with water and organic materials

10.5 Incompatible material
- Organic material

10.6 Hazardous decomposition products
- Chlorine and chlorine dioxide can be evolved following contact with strong acids

### Section 11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
- Acute toxicity: LD₅₀ rabbit (oral) 1200 mg/kg - Data for sodium chlorate
- Dermal compatibility: No data available
- Mucous membrane compatibility: No data available

### Section 12 ECOLOGICAL INFORMATION

12.1 Toxicity
- LC₅₀ Aquatic organisms - No data available

12.2 Degradability
- Not determined

12.3 Bio-accumulative potential
- Not determined

12.4 Mobility in soil
- Not determined

12.5 PBT/vPvB assessment
- Not applicable

12.6 Other adverse effects
- Risk of damage to plant life. Do not allow to get into waste water or waterways. If this occurs, inform the relevant water authority at once

### Section 13 DISPOSAL CONSIDERATIONS

Advice on disposal
- If possible, recycle to supplier or approved recycling company. If not (e.g. designated as waste), dispose of in accordance with national and local authority regulations, e.g. The Hazardous Waste (England & Wales) Regulations 2005

Contaminated packaging
- Treat empty containers in the same way as the product: if possible wash out thoroughly and recycle

### Section 14 TRANSPORT INFORMATION

14.1 United Nations number
- ADR, IMDG, IATA: UN 3356

14.2 Proper shipping name
- Oxygen generator, chemical

14.3 Transport class(s)
- ADR, IMDG, IATA: 5.1

14.4 Packing group
- ADR, IMDG, IATA: Not applicable

14.5 Environmental hazards
- The product should be marked as a marine pollutant

14.6 Special procedures
- ADR, IMDG, IATA: Not applicable

14.7 Transport in bulk
- Not applicable

### Section 15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations
- The SDS has been updated in accordance with EC Regulation No 1272/2008 (CLP/GHS)

15.2 Chemical safety assessment
- Not applicable
### OTHER INFORMATION

<table>
<thead>
<tr>
<th>Section 16</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Further information</td>
<td>The SDS has been revised in accordance with EC Regulation 1272/2008 (CLP)</td>
</tr>
<tr>
<td>Comply with COSHH Regulations</td>
<td></td>
</tr>
</tbody>
</table>
| Hazard statements referred to in sections 2/3: | H271: May cause fire or explosion; strong oxidiser  
H302: Harmful if swallowed  
H411: Toxic to aquatic life with long lasting effects |
| Prepared by | Dr Patricia Wormald, Molecular Products, PW@molprod.com |
| Date of issue | 27 January 2020 |

This information is based on our present state of knowledge and is intended to describe our products from the point of view of the safety requirements. It should not be construed as guaranteeing specific problems.