1 IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier:
   Identification on the label/Trade name: Formic Acid, 85%
   CAS: 64-18-6    EC: 200-579-1
   Index Number: 607-001-00-0
   REACH registration No.: 05-2114596xxx-32-0000
   Additional identification: N/A

1.2 Relevant identified uses of the substance and uses advised against:
   1.2.1 Identified uses:
   General chemical reagent

   1.2.2 Uses advised against:
   Not available.

1.3 Details of the supplier of the safety data sheet:
   xxxx Chemicals
   xxxx, France
   xxx, info@xxxxchemicals.com
   Tel: 003x-652549xxx

1.4 Emergency telephone Number: #3x-xxxx
   Available outside office hours? YES [ ] NO X [ ]

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Classification:
   The substance is classified as following according to 67/548/EEC and REGULATION (EC) No 1272/2008(CLP).

<table>
<thead>
<tr>
<th>EU CLP 1272/2008</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard classes/Hazard categories</td>
<td>Hazard statement</td>
</tr>
<tr>
<td>Skin Corrosion 1B</td>
<td>H314</td>
</tr>
</tbody>
</table>

*For full text of H- phrases: see section 2.2.*

<table>
<thead>
<tr>
<th>67/548/EEC(DSD)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazards characteristics</td>
<td>R-Phrases</td>
</tr>
<tr>
<td>Xn</td>
<td>R34</td>
</tr>
</tbody>
</table>

2.1.2 The most important adverse effects

2.1.2.1 The most important adverse physicochemical effects:
   Not applicable.

2.1.2.2 The most important adverse human health effects:
Causes severe skin burns and eye damage

2.1.2.3 The most important adverse environmental effects:
Not applicable.

2.2 Label elements

Hazard Pictograms: GHS05

Signal Word(S): Danger

Hazard Statement: H314 Causes severe skin burns and eye damage

P264 Wash hand/clothing thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

2.3 Other hazards
Not available.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Mixture

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS#</th>
<th>% by weight</th>
<th>REACH No.</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formic Acid</td>
<td>64-18-6</td>
<td>85</td>
<td>05-2114596428-32-0000</td>
<td>H314</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>15</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

4 FIRST AID MEASURES

4.1 Description of first aid measures:

4.1.1 In case of inhalation:
Remove victim to fresh air and keep at rest in a position comfortable for breathing.

4.1.2 In case of skin contact:
Remove contaminated clothing immediately. Rinse skin with water/shower. Wash contaminated clothing before reuse.

4.1.3 In case of eyes contact:
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

4.1.4 In case of ingestion:
If swallowed: Rinse mouth. Do not induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed
Skin burns. Symptoms can include redness, swelling, pain and tearing.

4.3 Indication of any immediate medical attention and special treatment needed
Immediately call a POISON CENTER or doctor/physician.

5 FIRE-FIGHTING MEASURES

5.1 Extinguishing media:
Suitable extinguishing media: Carbon dioxide, appropriate foam or dry chemical, water spray, water mist.
Unsuitable extinguishing media: Water jet.

5.2 Special hazards arising from the substance or mixture
Emits toxic fumes under fire conditions: Carbon monoxide (CO)

5.3 Advice for fire-fighters:
Firefighters must wear fire resistant protective equipment. Wear self contained breathing apparatus and protective gloves.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

6.1.1 For non-emergency personnel:
Remove ignition sources. Provide adequate ventilation. Avoid inhalation of vapour or dust. Avoid skin and eye contact. Wear protective gloves/protective clothing/eye protection/face protection.

6.1.2 For emergency responders:
Wear an appropriate NIOSH/MSHA approved respirator if mist, vapor or dust is generated.

6.2 Environmental precautions:
Avoid disposing into drainage/sewer system or directly into the aquatic environment. Keep away from drains, surface-and ground-water and soil.

6.3 Methods for containment and cleaning up:
For small spills, dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

For large spills, keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas.

6.4 Reference to other sections:
See Section 7 for information on safe handling.
See section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

6.5 Additional information:
Not available

7 HANDLING AND STORAGE

7.1 Precautions for safe handling:

7.1.1 Protective measures:
Do not breathe dusts/vapor. Handle in well ventilated areas. Eliminate all sources of ignition, and do not generate flames or sparks. Take precautionary measures against static discharges.

7.1.2 Advice on general occupational hygiene:
Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities
Store locked up.

Further information on storage conditions: Keep container tightly closed and dry in a cool, well-ventilated place.

7.3 Specific end use(s):
Not applicable.

8 EXPOSURE CONTROL/PERSONAL PROTECTION

8.1 Control parameters:

8.1.1 Occupational exposure limits:
WEL - Formic acid:
9 mg/m³ (5 ppm) (IOELV) – United Kingdom
9 mg/m³ from OSHA (PEL) - United States
Consult local authorities for acceptable exposure limits

8.1.2 Additional exposure limits under the conditions of use: Not available.

8.1.3 DNEL/DMEL and PNEC-Values: Not available.

<table>
<thead>
<tr>
<th>Worker</th>
<th>Consumer</th>
<th>Exposure route</th>
<th>Exposure frequency</th>
<th>Critical component</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td>Professional</td>
<td>Oral</td>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dermal</td>
<td>Acute</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8.2 Exposure controls

8.2.1 Appropriate engineering controls:
   Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

8.2.2 Individual protection measures, such as personal protective equipment:
   - **Eye/face protection:** Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.
   - **Hand protection:** Wear appropriate gloves to prevent skin exposure.
   - **Body protection:** Wear suitable protective clothing to prevent skin exposure.
   - **Respiratory protection:** Avoid breathing dust. In case of insufficient ventilation, wear suitable respiratory equipment.

8.2.3 Environmental exposure controls:
   Avoid discharge into the environment. This material and its container must be disposed of as hazardous waste according to local regulations, Federal and official regulations.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odour</td>
<td>Pungent</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>Strong Acid</td>
</tr>
<tr>
<td>Melting point/range (°C)</td>
<td>8 °C</td>
</tr>
<tr>
<td>Boiling point/range (°C)</td>
<td>100.8 °C</td>
</tr>
<tr>
<td>Flash point (°C)</td>
<td>42 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
Flammability (solid, gas): Not flammable
Ignition temperature (°C): Not determined
Upper/lower flammability/explosive limits: 57/18 vol %
Vapour pressure (20°C): 44.8 mm Hg @ 20 °C
Vapour density: Not applicable
Relative Density (25°C): 1.2267 g/ml
Water solubility (g/l) at 20°C: Miscible
n-Octanol/Water (log Po/w): Not applicable
Auto-ignition temperature: 480°C
Decomposition temperature: Not available
Viscosity, dynamic (mPa s): 1.607 mPa@ 25 °C

9.2 Physical hazards:
Flammable liquids

9.3 Other information:
Fat solubility(solvent– oil to be specified) etc Not available
Bulk Density: Not available
Dissociation constant in water( pKa): Not available
Oxidation-reduction Potential: Not available

10 STABILITY AND RELIABILITY

10.1 Reactivity:
The substance is stable under normal storage and handling conditions.

10.2 Chemical stability:
Under normal conditions, the product is stable. No hazardous reaction when handled and stored according to provisions. Hazardous reactions are not known.

10.3 Possibility of hazardous reactions:
Under normal conditions, not hazardous reactions will occur.

10.4 Conditions to avoid:
Heat, ignition sources, incompatible materials.

10.5 Incompatible materials:
Highly reactive with oxidizing agents.

10.6 Hazardous decomposition products:
Not available.

11 TOXICOLOGICAL INFORMATION

11.1 Toxicokinetics, metabolism and distribution
Non-human toxicological data: Not available
Method:
Dosage:
Routes of administration:
Results:
Absorption:
Distribution:
Metabolism:
Excretion:

11.2 Information on toxicological effects

Acute toxicity:
LD50 (Oral, Mouth): 700 mg/Kg
LD50 (Oral, Rat): 1100 mg/Kg
Skin corrosion/Irritation: Causes severe skin burns and eye damage.
Serious eye damage/Irritation: Causes severe skin burns and eye damage.
Respiratory or skin sensitization: Causes severe skin burns and eye damage.
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
STOT- single exposure: Not classified
STOT- repeated exposure: Not classified
Aspiration hazard: Not classified

12 ECOLOGICAL INFORMATION

Toxicity: Not available
Persistence and degradability: Not available
Bioaccumulative potential: Not available.
Mobility in soil: Not available.
Results of PBT&vPvB assessment: Not available.
Other adverse effects: Not applicable.

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Avoid discharge into the environment. This material and its container must be disposed of as hazardous waste according to local regulations, Federal and official regulations.

13.2 Product / Packaging disposal
If empty container retains product residues, all label precautions must be observed. Return for reuse or dispose according to national or local regulations.

14. TRANSPORT INFORMATION
15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- Relevant information regarding authorization: Not applicable.
- Relevant information regarding restriction: Not applicable.
- Other EU regulations: Employment restrictions concerning young person must be observed.
- Other National regulations: Not applicable

Chemical Safety Assessment Carried Out? YES [ ] NO [x]

16 OTHER INFORMATION

16.1 Indication of changes

Version 1.1 amended by EU No 453/2010

16.2 Relevant R-phrases (number and full text):

R34 Causes burns.

16.3 Training instructions:

Not applicable.

16.4 Further information:

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

16.5 Notice to reader:

Employers should use this information only as a supplement to other information gathered by
them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees.

This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

### Annex to extended safety data sheet (eSDS)

#### Exposure scenario

<table>
<thead>
<tr>
<th>Substance / User identity</th>
<th>01-xxxx-xxxx</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Registration number(s)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Substance identity</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>1</th>
<th>Short title of the exposure scenario</th>
<th>Formulator…</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Processes and activities covered by the exposure scenario</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Operational conditions and risk management measures</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Worker PROC x</th>
<th>PROC x</th>
<th>PROC x</th>
<th>PROC x</th>
<th>PROC x</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;4h</td>
<td>1-4h</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consumer PROC x</th>
<th>PROC x</th>
<th>PROC x</th>
<th>PROC x</th>
<th>PROC x</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;4h</td>
<td>1-4h</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Physical form of substance: under conditions of use it is used as a liquid. |
| solid |

<table>
<thead>
<tr>
<th>Concentration of substance in preparation or article</th>
</tr>
</thead>
</table>

| 5% |

<table>
<thead>
<tr>
<th>Other relevant operational conditions of use</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Risk management measures:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>2.1</th>
<th>Control of worker exposure</th>
<th>See CSR</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Technical conditions and measures at process level (source) to prevent release</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Technical conditions and measures to control dispersion from source towards the worker</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Engineering controls:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Organisational measures to prevent/limit releases, dispersion and exposure</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Conditions and measures related to personal protection, hygiene and health evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>2.3</td>
</tr>
</tbody>
</table>

Frequency and duration of use

<table>
<thead>
<tr>
<th>Use per site</th>
<th>Duration of emission</th>
<th>Waste water flow</th>
<th>Dilution factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission factor to waste water</td>
<td>Release fraction</td>
<td>Environment factors not influenced by risk management</td>
<td></td>
</tr>
</tbody>
</table>

Other given operational conditions affecting environmental exposure

Technical conditions and measures at process level (source) to prevent release

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Organizational measures to prevent/limit release from site

Conditions and measures related to municipal sewage treatment plant

Conditions and measures related to external treatment of waste for disposal

Conditions and measures related to external recovery of waste

Information on estimated exposure and Downstream-user guidance

<table>
<thead>
<tr>
<th>3</th>
<th>Exposure estimation and reference to its source:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers:</td>
<td>Dermal</td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
</tr>
<tr>
<td>Consumers:</td>
<td>Oral</td>
</tr>
<tr>
<td>Dermal</td>
<td>See CSR consumer exposure</td>
</tr>
<tr>
<td>Inhalation</td>
<td>See CSR consumer exposure</td>
</tr>
<tr>
<td>Environment</td>
<td>Water</td>
</tr>
<tr>
<td>Soil</td>
<td>See CSR PEC</td>
</tr>
<tr>
<td>Sediment</td>
<td>See CSR PEC</td>
</tr>
<tr>
<td>Air</td>
<td>See CSR PEC</td>
</tr>
<tr>
<td>STP</td>
<td>See CSR PEC</td>
</tr>
<tr>
<td>Humans via the environment</td>
<td>See CSR secondary poisoning</td>
</tr>
</tbody>
</table>

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Workers