SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier:
Product Name: MANGANESE BIS (2-ETHYLHEXANOATE) IN PRINTING INK SOLVENT
Synonyms: Manganese Octoate, Manganese 2-ethyl hexanoate
Trade Name: COMMET Mn-10 PKWF

1.2 Relevant identified uses of the substance or mixture and uses advised against:
Intended Use: Ink Additive

1.3 Details of Supplier of the safety data sheet:
Manufacturer & supplier: COMAR Chemicals (Pty) Ltd
Neil Hare Road
Atlantis Industrial
Cape Town
South Africa
Tel.: (+27) 21 577-1333
Fax.: (+27) 21 577-1343
E-mail: info@comarchem.co.za
www.comarchem.com

1.4 Emergency Telephone number:
Emergency number: +27-827740071 / +27 21 5771333/ +27 825774766

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]
Classification:
Skin Irrit. 2, H315
Asp. Tox. 1, H304
Eye Irrit., 2, H319

Human health hazards:
Irritating to the eyes and respiratory system
Maybe fatal if swallowed and enters airways.
Irritating to skin.

2.2 Label Elements
Hazard pictograms:

Signal Word: Danger
Hazard Statements:
H312 - Harmful in contact with skin.
H315 - Causes skin irritation.
H304 - May be fatal if swallowed and enters airways.
H319 – Causes serious eye irritation.
H335 - May cause respiratory irritation
H332 - Harmful if inhaled.

Precautionary statements:
Prevention:
P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P273: Avoid release to the environment.

Response:
P301+P330: IF SWALLOWED: Immediately call a POISON CENTRE or physician.
P331: Do NOT induce vomiting.
P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
Storage: P403+P235: Store in a well ventilated place. Keep cool.

Disposal: P501: Dispose of contents and container in accordance with all local, regional, national and international regulations.

2.3 Other Hazards

Other hazards which do not result in classification: None known

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Product definition (REACH): Mixture

<table>
<thead>
<tr>
<th>Product/Ingredient Name</th>
<th>Identifiers</th>
<th>(%)</th>
<th>67/548/EEC</th>
<th>Classification</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese bis (2-ethylhexanoate)</td>
<td>EINECS: 236-562-0 CAS: 13434-24-7</td>
<td>62</td>
<td>R20/22</td>
<td>See Section 16 for the full text of the R-phrases declared above.</td>
<td>Skin Irrit. 2, H315</td>
</tr>
<tr>
<td>Printing Ink Distillates</td>
<td>EINECS: 2651131 CAS: 64742-13-8</td>
<td>33</td>
<td>Xn; R65</td>
<td></td>
<td>Asp.Tox.1, H304</td>
</tr>
<tr>
<td>Glycol Ether</td>
<td>EINECS: 203-905-0 CAS: 111-76-2</td>
<td>1 - 5</td>
<td>R20/21/22 R36/37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Occupational exposure limits, if available, are listed in Section 8.
SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid measures

After Inhalation: Keep victim calm and remove to fresh air if safe to do so. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

After skin contact: Remove clothing and wash affected areas thoroughly with water and soap.

After eye contact: Rinse thoroughly with water until irritation stops. If irritation continues, consult a Doctor.

After Ingestion: If swallowed, do NOT induce vomiting. Transport to nearest medical facility for additional treatment.

4.2 Most important symptoms & effects, both acute & delayed
See Section 11 for more detailed information on health effects and symptoms.

4.3 Indication of any immediate medical attention and special treatment needed
See Section 11 for more detailed information on health effects and symptoms.

SECTION 5: FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing media: Powder, foam, sand, or CO₂

Un-suited extinguishing media: Do not use water-jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion product: Decomposition may include the following products: Metal oxides and/or Carbon oxides.

5.3 Advice for fire-fighters

Special precautions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk.

Special Protection Equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA).

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Remove sources of ignition. Ensure sufficient ventilation, or provide respiratory protection. Protect eyes and skin.

6.2 Environmental precautions

Inform relevant local authorities. Inform inhabitants of areas that will be affected of possible fire / explosion.

6.3 Methods and materials for containment and clean-up

Do not allow ingress into ground or surface water, or drainage systems. Fill into containers and dispose at toxic waste disposal sites. Local regulations must be observed.

6.4 Reference to other Sections

Note: see Section 1 for emergency contact information and Section 13 for waste disposal.
SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Precautions for safe handling: Do not smoke. Remove sources of ignition. Avoid contact with skin, eyes and clothing. Handle material in adequately ventilated areas. Ensure proper use of recommended safety apparel. Do not use compressed air or compressed oxygen for transfer of product. Partially used drums must be securely closed after use.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry and ventilated area. Keep away from incompatible materials such as oxidising agents. Ensure material is kept in a closed container. Keep away from ignition sources.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Occupational exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Distillates (Petroleum)</td>
<td>Manganese inorg. dust as Mn:</td>
</tr>
<tr>
<td></td>
<td>TLV-TWA: 5.00 mg/m³ 1992</td>
</tr>
<tr>
<td></td>
<td>TWA: 200ppm; (1963 mg/m³)</td>
</tr>
<tr>
<td>Glycol Ether</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td>TLV-TWA: 20ppm; 8 hours</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL Z1: 240 mg/m³</td>
</tr>
</tbody>
</table>

8.2 Exposure Controls

Hand protection: Approved Dust Respirator recommended.
Eye protection: Full-cover goggles recommended
Skin protection: PVC/rubber gloves (impervious)
Hygiene measures: Keep away from food. Wash hands thoroughly with water and soap before breaks and at the end of a work day. Provide separate storage of work clothes and private clothes.

SECTION 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>Physical state</td>
<td>Clear Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Dark Brown</td>
</tr>
<tr>
<td>Odour</td>
<td>Slight oil/alcohol smell</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>&gt;260 °C</td>
</tr>
<tr>
<td>pH</td>
<td>not measurable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>&gt;110 °C (as per ASTM D93)</td>
</tr>
<tr>
<td>Solidification Temperature</td>
<td>&lt;20 °C</td>
</tr>
<tr>
<td>Density</td>
<td>1020 kg/m³ (as per ASTM D 1298)</td>
</tr>
</tbody>
</table>

SOLVENT

Boiling Point/Range: >260-290 °C
Solubility: soluble in organic solvents such as white spirits, xylol, alcohol, glycol
SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
The product is stable under normal conditions.

10.2 Chemical stability
The product is stable under normal conditions.

10.3 Possibility of hazardous reactions
Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid
Avoid all possible sources of ignition (spark or flame).

10.5 Incompatible materials
Avoid strong oxidisers, inorganic acids, organic peroxides

10.6 Hazardous decomposition products
Metal oxides and carbon oxides. At pyrolysis temperature in excess of 1000 °C possible formation of metal oxides, CO, CO2, and vapours of acid decomposition.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological effects
- Inhalation: May cause respiratory sensitisation.
- Skin contact: May cause skin irritation.
- No data available for reproductive toxicity
- Distillates (Petroleum): Practically non-toxic
- Glycol Ether: (Rabbits) LD50: > 220mg/kg for acute dermal toxicity

SECTION 12: ECOLOGICAL INFORMATION

12.1 Eco-Toxicity
No data available

12.2 Persistence and degradability:
No data available

12.3 Mobility
No data available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

<table>
<thead>
<tr>
<th>Product</th>
<th>Methods of disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Examine possibilities for re-utilisation. Product residues and uncleaned empty containers should be packaged, sealed, labelled, and disposed of or recycled according to relevant national and local regulations. Where large quantities are concerned, consult the supplier. Do not dispose into the environment, in drains or in water courses. Waste material should not be allowed to contaminate soil or water.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Packaging</th>
<th>Methods of disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Disposal should be in accordance with applicable regional, national, and local laws and regulations.</td>
</tr>
</tbody>
</table>
COMMET Mn-10 PKWF
Safety Data Sheet
according to Regulation (EU) 2015/830
Revision date: 08/11/2018

SECTION 14: TRANSPORT INFORMATION

- LAND & INLAND WATERWAYS (ADR/RID)
  Not regulated

- INLAND WATERWAYS (ADNR)
  Not regulated

- SEA (IMDG)
  Not regulated

- AIR (IATA)
  Not regulated

SECTION 15: REGULATORY INFORMATION

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

Material is dangerous as defined by the EU Substance/Preparations Directive.

SECTION 16: OTHER INFORMATION

Full Text of abbreviated H statements

H312 : Harmful in contact with skin.
H315 : Causes skin irritation.
H304 : May be fatal if swallowed and enters airways.
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H335 : May cause respiratory irritation
H332 : Harmful if inhaled.

DATE OF PREVIOUS VERSION : 01/10/2012
REVISION REASON : GHS Format

The information and recommendations contained herein are believed to be accurate and reliable at the time of issue. It is however the user’s responsibility to satisfy itself that the product is suitable for the intended use. No warranties, either implied or expressed, shall be extended as to the accuracy or completeness of the information contained herein, and we assume no responsibility regarding the suitability of the information for the user’s intended purposes or for the consequences of its use.