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

1.1 Product Identifier:
- Product Name: ZIRCONIUM (2-ETHYLHEXANOATE) IN LOW AROMATIC WHITE SPIRITS
- Synonyms: Zirconium Octoate, Zirconium 2-ethyl hexanoate
- Trade Name: COMMET Zr-12 LA

1.2 Relevant identified uses of the substance or mixture and uses advised against:
- Intended Use: Paint Drier

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]
  - Flam. Liq. 3, H226
  - Skin Irrit. 2, H315
  - Asp. Tox. 1, H304
  - Aquatic Chronic 2, H412

- Physical/chemical hazards: Flammable liquid and vapour.
- Human health hazards: May be fatal if swallowed and enters airways.
  - Irritating to skin.
  - Vapours may cause drowsiness and dizziness.
- Environmental hazards: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2 Label Elements
- Hazard pictograms:
  - Flammable liquid
  - Skin irritation
  - Drowning
  - Plant toxicity

- Signal Word: Danger
- Hazard Statements:
  - H226 - Flammable liquid and vapour.
  - H315 - Causes skin irritation.
  - H304 - May be fatal if swallowed and enters airways.
  - H336 - May cause drowsiness or dizziness.
  - H401 - Toxic to aquatic life.

- Additional warning phrases: Repeated exposure may cause skin dryness or cracking.
- Precautionary statements:
  - Prevention: P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
  - P240: Ground/bond container and receiving equipment
  - P280: Wear protective gloves/protective clothing/eye protection/face shield
COMMET Zr-12 LA
Safety Data Sheet
according to Regulation (EU) 2015/830
Date of issue: 01/10/2012 Revision date: 08/05/2018
Version: 04

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Response:
P243: Take precautionary measures against static discharge.
P273: Avoid release to the environment.

Response:
P301+P310: 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></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha (petroleum), hydrodesulfurised heavy</td>
<td></td>
<td>50</td>
<td>R36/37; R65 R51/53</td>
<td>Flam. Liq.3 , H226 Skin Irrit. 2, H315</td>
</tr>
</tbody>
</table>

See Section 16 for the full text of the R-phrases declared above.

See Section 16 for the full text of the H-phrases declared above.

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-suitable 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/ 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. Ground containers. 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>Zirconium</td>
<td>ACGIH Zirconium inorg. dust as Zr: TLV-TWA: 5.00 mg/m³ 1992</td>
</tr>
<tr>
<td>Naphtha (petroleum), hydrodesulphurised heavy</td>
<td>ACGIH TLV-TWA: 100ppm; 525 mg/m³</td>
</tr>
</tbody>
</table>

Recommended monitoring procedures:

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

8.2 Exposure Controls

<table>
<thead>
<tr>
<th>Hand protection</th>
<th>Approved Dust Respirator recommended.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye protection</td>
<td>Full-cover goggles recommended</td>
</tr>
<tr>
<td>Skin protection</td>
<td>PVC/rubber gloves (impervious)</td>
</tr>
<tr>
<td>Hygiene measures</td>
<td>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.</td>
</tr>
</tbody>
</table>
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>Appearance:</td>
<td></td>
</tr>
<tr>
<td>Physical state</td>
<td>Clear Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Pale Straw</td>
</tr>
<tr>
<td>Odour</td>
<td>Slight oil/alcohol smell</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>&gt;140 °C</td>
</tr>
<tr>
<td>pH</td>
<td>not measurable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>&gt;35 °C (as per ASTM D93)</td>
</tr>
<tr>
<td>Solidification Temperature</td>
<td>&lt;−20 °C</td>
</tr>
<tr>
<td>Density</td>
<td>970 kg/m³ (as per ASTM D 1298)</td>
</tr>
<tr>
<td>SOLVENT</td>
<td></td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>&gt;140 °C</td>
</tr>
<tr>
<td>Solubility</td>
<td>soluble in organic solvents such as white spirits, xylol, alcohol, glycol</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>approx. 0.6% to 6.5% vol/vol</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>&lt;10 hPa</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Health effect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>May cause skin irritation.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>May cause eye irritation.</td>
</tr>
</tbody>
</table>
**Acute Toxicity:**

<table>
<thead>
<tr>
<th>Product name / ingredient</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Spirits</td>
<td>LD50 Oral</td>
<td>* Rat</td>
<td>&gt;2000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>White Spirits</td>
<td>LD50 Dermal</td>
<td>* Rat</td>
<td>&gt;2000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>White Spirits</td>
<td>LD50 Inhalation vapour</td>
<td>* Rat</td>
<td>&gt;5 mg/l</td>
<td>-</td>
</tr>
</tbody>
</table>

*Test results on an analogous product.

**SECTION 12 : ECOLOGICAL INFORMATION**

12.1 **Toxicity**

<table>
<thead>
<tr>
<th>Product name / ingredient</th>
<th>Test</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Spirits</td>
<td>Estimated</td>
<td>1 &lt; LC50 ≤ 10 mg/l</td>
<td>Fish</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Estimated</td>
<td>1 &lt; EC50 ≤ 10 mg/l</td>
<td>Daphnia</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Estimated</td>
<td>1 &lt; IC50 ≤ 10 mg/l</td>
<td>Algae</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Estimated</td>
<td>1 &lt; IC50 ≤ 10 mg/l</td>
<td>Bacteria</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Estimated</td>
<td>1 &lt; EC50 ≤ 10 mg/l</td>
<td>Sewage Treatment Organisms</td>
<td>-</td>
</tr>
</tbody>
</table>

12.2 **Persistence and degradability:**

No Data Available

12.3 **Bioaccumulative potential**

No Data Available

12.4 **Mobility**

No Data available

**SECTION 13 : DISPOSAL CONSIDERATIONS**

13.1 **Waste treatment methods**

Product Methods of disposal : 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.

Packaging Methods of disposal : Disposal should be in accordance with applicable regional, national, and local laws and regulations.
SECTION 14 : TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>14.1 UN Number</th>
<th>ADR / RID</th>
<th>ADN</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN1263</td>
<td>UN1263</td>
<td>UN1263</td>
<td>UN1263</td>
<td>UN1993</td>
</tr>
</tbody>
</table>

14.2 UN Proper shipping name
- PAINT RELATED MATERIAL (ZIRCONIUM OCTOATE)
- PAINT RELATED MATERIAL (ZIRCONIUM OCTOATE)
- PAINT RELATED MATERIAL (ZIRCONIUM OCTOATE)
- FLAMMABLE LIQUID, N.O.S (ZIRCONIUM OCTOATE)

14.3 Transport hazard class / marks
- Flammable
- Flammable
- Flammable
- Flammable

14.4 Packing Group
- III
- III
- III
- III

14.5 Environmental hazards
- Yes
- Yes
- Yes
- Yes

14.6 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code
- Not available

SECTION 15: REGULATORY INFORMATION

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

EC Label Name : Low Aromatic White Spirits
EC Classification : Flammable, Dangerous for the environment
EC Symbol : N

EINECS (EC) : 265-185-4
MITI (Japan) : 9-1699
TSCA (USA) : Listed
AICS (Australia) : Listed
DSL (Canada) : Listed
TCCL (Korea) : 9212-4362
PICCS (Philippines) : Listed

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms
- ATE : Acute toxicity estimate
- CLP : Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DNEL : Derived No Effect level
- EUH statement : CLP-specific Hazard statement
- PBT : Persistent, Bio-accumulative and Toxic
- PNEC : Predicted No Effect Concentration
- RRN : REACH Registration number
- vPvB : Very Persistent and very Bio-accumulative

Full Text of abbreviated H statements
- H226 : Flammable liquid and vapour.
- H304 : May be fatal if swallowed and enters airways.
- H315 : Causes skin irritation.
- H336 : May cause drowsiness or dizziness.
- H411 : Toxic to aquatic life with long lasting effects
COMMET Zr-12 LA
Safety Data Sheet
according to Regulation (EU) 2015/830
Date of issue: 01/10/2012 Revision date: 08/05/2018

Full Text of R-Phrases referred to in Sections 2 and 3

<table>
<thead>
<tr>
<th>R-Phrase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R10</td>
<td>Flammable.</td>
</tr>
<tr>
<td>R20/21/22</td>
<td>Harmful by inhalation, in contact with skin and if swallowed.</td>
</tr>
<tr>
<td>R36/37</td>
<td>Irritating to eyes and respiratory system</td>
</tr>
<tr>
<td>R40/20</td>
<td>Harmful: potential for serious damage to health by prolonged exposure through inhalation.</td>
</tr>
<tr>
<td>R65</td>
<td>Harmful: may cause lung damage if swallowed.</td>
</tr>
<tr>
<td>R66</td>
<td>Repeated exposure may cause skin dryness or cracking.</td>
</tr>
<tr>
<td>R38</td>
<td>Irritating to skin.</td>
</tr>
<tr>
<td>R67</td>
<td>Vapours may cause drowsiness and dizziness.</td>
</tr>
<tr>
<td>R51/53</td>
<td>Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment</td>
</tr>
</tbody>
</table>

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.