CIMSTAR® MB602C

Cutting and grinding fluid for medium to heavy duty applications.

Introduction

Modern metalworking fluids are complex blends of chemicals and mineral oil which have the capacity to operate on a wide variety of applications. They should be resistant to tramp oil, bacteria and other contaminants and still perform at the highest level. CIMCOOL undertakes extensive research and development in Europe giving the highest priority to health and safety and one of the results of such developments is CIMSTAR MB602C.

Description

CIMSTAR MB602C is a clear, amber, water miscible, non-nitrite, preformed microfine emulsion type cutting fluid concentrate.

Application

CIMSTAR MB602C is a general purpose biostatic cutting fluid recommended for medium to heavy duty grinding and machining off all ferrous and most non-ferrous metals. It is especially suitable for aluminium alloys. CIMSTAR MB602C is a product designed for use in individual machine and central systems.

Features and Benefits

- Very good rancidity control - exhibits true biostatic action.
- Suitable for a wide range of materials and operations.
- Does not stain aluminium and aluminium alloys.
- Excellent emulsion stability.
- Clean and mild product.
- Will not smoke or burn.
- Suitable as a replacement for cutting oils in automatics and multi-spindle machines where machine design permits the use of water based fluids.

Method of Application

CIMSTAR MB602C is easy to mix. Just pour the product into water at the recommended concentration and stir. For automatic mixing, use of the CIMCOOL Mix Master is recommended.

Mix Master Tip Selection Chart *)

<table>
<thead>
<tr>
<th>Colour</th>
<th>Brown</th>
<th>Orange</th>
<th>Green</th>
<th>Tan</th>
<th>Blue</th>
<th>White</th>
<th>Red</th>
<th>Beige</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration</td>
<td>1.1</td>
<td>1.4</td>
<td>1.6</td>
<td>2.7</td>
<td>3.1</td>
<td>3.7</td>
<td>5.0</td>
<td>8.2</td>
</tr>
</tbody>
</table>

*Note: The chart provides a reference for mixing concentrations with water for the different colors. The values represent the parts per million (ppm) of the fluid to use for each color.
Recommended Starting Concentration

<table>
<thead>
<tr>
<th>Operation</th>
<th>Material</th>
<th>Aluminium and copper alloys</th>
<th>Cast Iron and carbon steel</th>
<th>Steel alloys and stainless steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grinding</td>
<td></td>
<td>2.5%</td>
<td>2.5%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Standard machining</td>
<td></td>
<td>4.0%</td>
<td>5.0%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Heavy duty machining</td>
<td></td>
<td>6.0%</td>
<td>8.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Reaming, tapping, broaching</td>
<td></td>
<td>8.0%</td>
<td>10.0%</td>
<td>10.0%</td>
</tr>
</tbody>
</table>

Concentration Analysis
For concentration analysis of CIMSTAR MB602C, use either the CIMCOOL TA Kit, CIMCHEK™ concentration test strips, or CIMCOOL Refractometer or an appropriate laboratory procedure available from your local stockist. If the refractometer is used, the resultant reading multiplied by a factor of 1.5 will only be relevant when applied to a fresh mix.

Titration results TA Kit

<table>
<thead>
<tr>
<th>Mix</th>
<th>Use ml.</th>
<th>Reading of the syringe, Concentration in percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>0.88</td>
<td>0.75 0.63 0.50 0.38 0.25 0.13 0.00 **.87 **.75</td>
</tr>
</tbody>
</table>

**: next syringe

Cimchek concentration test strips

<table>
<thead>
<tr>
<th>Number of blue pads</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate %</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>10</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>of metalworking fluid mix</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Handling and Storage
Protect from freezing.

Packaging
200 and 25 litre drums.

The Material Safety Data Sheet should be consulted for specific information and information on health and safety when handling this product.

*) The concentration may vary depending on local conditions.
1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product name: Cimstar MB602-C
Generic name: Water miscible metalworking fluid.

Supplier: Cimcool Industrial Products B.V.
Schiedamsedijk 20
3134 KK Vlaardingen
The Netherlands
TEL.: (0)10-4600660 FAX. (0)10-4603240

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components: The product contains no substances which at their given concentration, are considered to be hazardous to health.

Chemical characterization: Hydrotreated paraffinic mineral oil (max. 35%), anionic and nonionic emulsifiers, organic and inorganic corrosion inhibitors, biocides, water.

Product does not contain: Nitrite, heavy metals, PCB's, phenols, chlorine, phosphates.

3. HAZARDS IDENTIFICATION

Most important hazards: Health injuries are not known or expected under normal use.
Do not allow material to contaminate ground water system.

Specific hazards: Spilled product may result in slippery floors.

4. FIRST AID MEASURES

Inhalation: Not expected to be a probable route of exposure to product concentrate.

Skin contact: In case of skin contact with product concentrate, wash with water as soon as possible. Diluted product is not irritating to the skin when used as recommended and good personal hygiene is practised. Remove severely contaminated clothing, including shoes. Launder before re-use. If irritation persists, get medical attention.

Ingestion: If concentrate or mix is swallowed, do not induce vomiting. Dilute by drinking water or milk. Immediately contact physician and obtain treatment. Swallowing small quantities of diluted product is not expected to cause injury or illness but, as should be expected when drinking oily, soapy water, nausea, diarrhoea or abdominal distress may be expected.

Eye contact: In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Extinguish with carbon dioxide, dry chemical, foam or waterspray.

Specific methods: None.
6. ACCIDENTAL RELEASE MEASURES

Soak up with inert absorbent material. After cleaning, flush away traces with water. Dispose of rinse water in accordance with local and national regulations.

7. HANDLING AND STORAGE

Handling:
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

Storage:
Do not freeze.
Store at room temperature in the original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal protection equipment:
- Respiratory protection:
  No special precautions required.

- Eye protection:
  Safety shield or goggles required when handling concentrated product.

Engineering measures:
For most applications, normal shop ventilation is adequate. However, when high mist levels are generated or where machines are close together, or where ventilation is inadequate, use of splash guards or mist collectors is recommended.

- Hand protection:
  Impervious gloves are required when handling product concentrate.

- Skin and body protection:
  Effective metalworking plant protective clothing as appropriate.

Hygiene measures:
General industrial hygiene practice, preventive skin protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: liquid
Colour: amber
Odour: mild

pH: (concentrate) (20 °C) Not applicable DIN 51369 (7/1981)
pH: (operating) 5%, 20 °C 9.0 DIN 51369 (7/1981)

Boiling point/range: > 100 °C
Melting point/range: < 0 °C

Flash point:
> 100 °C ASTM D93-80

Density: (20 °C) 990 kg/m³ DIN 51757/7 (1/1984)
Water solubility: (20 °C) emulsifiable

Viscosity: (20 °C) 700 mm²/s DIN 51562/1 (1/1983)
10. STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions

Materials to avoid: Incompatible with strong acids and oxidizing agents

Conditions to avoid: Not applicable.

Hazardous decomposition products: In the event of fire carbon oxides, nitrogen oxides (NOx) may be formed.

11. TOXICOLOGICAL INFORMATION

Description of possible hazardous to health effects is based on experience and/or toxicological characteristics of several components.

- Inhalation: Not applicable
- Skin contact: Not a primary irritant
- Eye contact: Not a primary irritant
- Ingestion: Not orally toxic

Product at use dilution.

- Inhalation: Inhalation of diluted mix can occur in applications where high mist levels are generated. Concentrations of mist in the working atmosphere must be kept as low as possible. These should comply with national regulations (see 16).
- Skin contact: Mild skin irritation (redness and dryness of hands) may be experienced when the diluted product has been contaminated by certain oils, by dissolved metals or when mix ratio is too strong. When problems occur, use of water resistant barrier creams may be a temporary control measure.
- Eye contact: May cause stinging sensation in eye.
- Ingestion: Swallowing small quantities may cause nausea or diarrhoea.

12. ECOLOGICAL INFORMATION

Do not allow material to contaminate ground water system. Prevent product from entering drains

Chemical oxygen demand (COD) = 15 g/l, 1% mix.

13. DISPOSAL CONSIDERATIONS

Disposal procedures must comply with local regulations. If pretreatment is needed, chemical emulsion breaking or ultrafiltration may be used.

14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

UN-No: -

ADR/RID

Class: -

IMO

Class: -

15. REGULATORY INFORMATION

The product does not need to be labelled in accordance with EC directives or respective national laws.

- Contains: -
SAFETY DATA SHEET

Product name: Cimstar MB602-C

R-phrase(s): None
S-phrase(s): None

16. OTHER INFORMATION

Publication EH 62 "Metalworking fluids - health precautions" from the Health and Safety Executive.

REVISION DATE: 10/10/1997

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.