CommQuench™ 102
Heat Treating and Quenching Oil

WHAT IT DOES:
Commonwealth Oil’s CommQuench™ 102 is a premium oil formulated for high speed heat-transfer and quenching operations. A quench oil's purpose is to permit rapid cooling of a metal from above its critical temperature by immersion in the oil to obtain hardness or other desired properties. With proper cooling, hardened steel should be subject to minimal distortion and discoloration.

WHERE TO USE IT:
CommQuench™ 102 is typical of what would be used in high speed quenching. This process allows precision parts to be quenched (hardened) while reducing the distortion normally seen. This is particularly important for high quality bearing and power train parts as well as tools and dies.

It is important to note that GM quencherometer (ASTM D 3520-76) response with the chromized nickel ball differs significantly from the response of the GM quencherometer using a plain nickel ball. The GM quencherometer response (cooling rate) with the chromized ball is delayed, as compared to the plain nickel ball due to the chromium coating. The chromium coating reduces the incidence of deposits (oxide coating), which are common to the plain nickel ball. The reduction in deposits improves the repeatability of the GM quencherometer. Therefore making it a more reliable tool.

CommQuench™ 102 has a GM Quencherometer time of 9.0 to 10 seconds using a nickel ball at a temperature of 457°C/856°F.

When comparing different types of quenching oils, it is important to know what type of ball was used to generate test results. Incorrect assumptions could greatly distort any comparison studies.

PERFORMANCE BENEFITS:
CommQuench™ 102 has been specifically formulated to deliver the following benefits:
- Superior deposit control
- Exceptional quenching acceleration at a constant rate
- Improved hardness with minimum cracking and distortion
- Permits rapid cooling of a metal above its critical temperature
- Promotes deep hardening of parts
- Reduced quench oil reservoir maintenance
CommQuench™ 102

TECHNICALLY SPEAKING:

<table>
<thead>
<tr>
<th>Test</th>
<th>CommQuench™ 102</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity: cSt @ 40°C</td>
<td>22</td>
</tr>
<tr>
<td>Viscosity: SUS @ 100°F</td>
<td>106</td>
</tr>
<tr>
<td>Flash Point, COC °C</td>
<td>&gt; 175</td>
</tr>
<tr>
<td>Flash Point, COC °F</td>
<td>&gt; 347</td>
</tr>
<tr>
<td>GM Quench Speed from 843°F</td>
<td>9.0 - 10.0</td>
</tr>
<tr>
<td>Density, lbs./US Gallon</td>
<td>7.09</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.85</td>
</tr>
</tbody>
</table>

These are typical figures and do not constitute a specification.

Handling & Safety Information
For information on the safe handling and use of this product, refer to the Material Safety Data Sheet obtainable from Commonwealth Oil Corporation.

Available in Pails, Drums and One-Way Bulk Containers
SECTION 1: Product Information and Company Identification

<table>
<thead>
<tr>
<th>Common Name</th>
<th>CommQuench™ 102</th>
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</thead>
<tbody>
<tr>
<td>Product Code</td>
<td>7053</td>
</tr>
<tr>
<td>Material Use</td>
<td>Quenching Oil</td>
</tr>
<tr>
<td>Supplier/Manufacturer</td>
<td>Commonwealth Oil, 2080 Ferriss Rd N., Harrow, ON, N0R 1G0</td>
</tr>
<tr>
<td>In Case of Emergency</td>
<td>CANUTEC (613) 996-6666 COLLECT 24 Hr</td>
</tr>
</tbody>
</table>

SECTION 2: Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Registry No.</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>Concentration %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lubricating oils, petroleum,</td>
<td>64742-58-1</td>
<td>5 mg/m³ (oil mist)</td>
<td>5 mg/m³ (oil mist)</td>
<td>60 to 99</td>
</tr>
<tr>
<td>hydrotreated spent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petroleum distillates,</td>
<td>64742-54-7</td>
<td>5 mg/m³ (oil mist)</td>
<td>5 mg/m³ (oil mist)</td>
<td>60 to 99</td>
</tr>
<tr>
<td>hydrotreated heavy paraffinic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proprietary Mixture</td>
<td>Proprietary</td>
<td>TWA: 5 mg/m³ (oil</td>
<td>TWA: 5 mg/m³ (oil mist)</td>
<td>1 to 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mist)</td>
<td>STEL: 10 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

See Section 11 for Toxicological Data.

SECTION 3: Hazards Identification

**Appearance**: Amber liquid, petroleum odour.

**Health Hazards**: May be harmful if swallowed. May irritate eyes and skin.

**Potential Health Effects**

**Inhalation (Breathing)**: This product is not likely to present an inhalation hazard at normal temperatures and pressures. However, when aerosolizing, misting or heating this product, high concentrations of generated vapour may irritate the respiratory tract (nose, throat and lungs)

**Eyes**: May cause irritation.

**Skin**: May cause irritation. Not likely to be absorbed through the skin in harmful amounts.

**Ingestion (Swallowing)**: May cause throat irritation, nausea, vomiting and diarrhea. Breathing product into lungs during ingestion may cause lung injury and possible death.

**Medical Conditions Aggravated by Exposure**: Individuals with pre-existing respiratory tract (nose, throat and lungs), eye and/or skin disorders may have increased susceptibility to the effects of exposure.

**Chronic**: Prolonged or repeated inhalation of oil mist may cause oil pneumonia, lung tissue inflammation and/or fibrous tissue formation. Prolonged or repeated eye contact may cause inflammation to the membrane lining the eyelids and covering the eyeball (conjunctivitis). Prolonged or repeated skin contact may cause drying, cracking, redness, itching and/or swelling (dermatitis).
**CommQuench™ 102**

Material Safety Data Sheet

**SECTION 4: First Aid Measures**

**Eye Contact**: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 20 minutes. Cold water may be used. Get medical attention if irritation occurs and or persists.

**Skin Contact**: Remove any contaminated clothing. Wash with soap and water. Get medical attention if irritation occurs and or persists.

**Inhalation**: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion**: Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious patient. If large amounts of this material are swallowed, call a physician immediately.

**Notes to Physician**: Treat symptomatically and supportively. Treatment may vary with condition of victim and specifics of incident.

**SECTION 5: Fire Fighting Measures**

**Flammability of the Product**: Low hazard. May be combustible or burn at high temperatures above flash point.

**Auto Ignition Temperature**: Not Established

**Flash Point (COC)**: > 175°C (> 347°F)

**Flammable Limits**: Not Established

**Hazardous Combustion Products**: Decomposition and combustion materials may be toxic. Burning may produce sulphur oxides, aldehydes, ketones, carbon monoxide and unidentified organic compounds.

**Conditions of Flammability**: Sparks or flame. Product may burn but does not ignite readily.

**Fire and Explosion Hazards**: Heated containers may rupture. "Empty containers may retain residue and can be dangerous. Product is not sensitive to mechanical impact or static discharge.

**Fire Fighting Media and Instructions**: SMALL FIRE: Use dry chemical powder

LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Protective Clothing (Fire)**: Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. Be sure to use a MSHA/NIOSH approved respirator or equivalent.

**Special Remarks on Fire Hazards**: Do not use forced stream as this could cause fire to spread. Self-contained breathing apparatus should be worn by fire fighters.

**SECTION 6: Accidental Release Measures**

**Small Spill and Leak**: Absorb with an inert material and put spilled material in an appropriate waste disposal.

**Large Spill and Leak**: Absorb with an inert material and put spilled material in an appropriate waste disposal. Do not allow any potentially contaminated water including rainwater, runoff from fire fighting or spills enter any waterway, sewer or drain.

**Note**: See section 8 for personal protective equipment and section 13 for waste disposal.

**SECTION 7: Handling and Storage**

**Handling**: Use proper grounding procedures as material can accumulate static charges. Avoid breathing vapors or spray mists. Avoid contact with eyes, skin and clothing. After handling, always wash hands thoroughly with soap and water. Do not cut, weld, heat or pressurize containers. Use with adequate ventilation.

**Storage**: Keep container tightly closed. Store in a dry, cool and well-ventilated area. Do not cut, weld, heat or pressurize empty containers. Do not store near open flames or sources of ignition.
SECTION 8: Exposure Controls, Personal Protection

Engineering Controls: Good general ventilation should be sufficient to control airborne levels. Local exhaust is recommended to control emissions at the source. Mechanical ventilation is recommended for confined areas. Ensure eyewash stations and safety showers are proximal to the work station location.

Personal Protection

Eyes: Safety glasses or goggles are advisable.
Body: Lab coat or suitable protective clothing is advisable.
Respiratory: A respirator is not needed under normal and intended usage conditions.
Hands: Chemical resistant or oil impervious gloves are advisable.
Feet: Shoes (as required by the work place).

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Vapor respirator. Boots. Chemical resistant gloves. A self contained breathing apparatus should be used to avoid inhalation of the product.

Exposure Limits:
Oil Mist – Severely refined: TLV-TWA: 5 mg/m³ Form: Mist

SECTION 9: Physical and Chemical Properties

Physical State: Liquid
Appearance and Colour: Clear golden yellow solution.
Odour: Petroleum odour.
pH: Not Applicable
Flash Point (COC): > 175°C (> 347°F)
Boiling/Condensation Point: > 260°C (> 500°F)
Pour Point °C (°F): Not Available
Freezing Point: < -18 (0)
Specific Gravity: 0.85 (Water = 1)
Density, lbs./Gallon: 7.09
Vapor Pressure: Not Available
Vapor Density: Not Available
% Volatility, By volume: Not Available
Evaporation Rate: Negligible
VOC: Not Applicable
Viscosity cSt @ 40°C: 22
Solubility in Water: Not Soluble

SECTION 10: Stability and Reactivity

Stability and Reactivity: Stable under normal temperatures and pressures.
Incompatibility with: Avoid oxidizing agents.
Various Substances
Hazardous Decomposition Products: Decomposition and combustion materials may be toxic. Burning may produce sulphur oxides, aldehydes, ketones, carbon monoxide and unidentified organic compounds
Hazardous Polymerization: Will not occur
SECTION 11: Toxicological Information

**Component analysis – LD50/LC50**
- Lubricating oils, petroleum: Oral LD50 Rat >2000 mg/kg; Dermal LD50 Rat >2000 mg/kg
- hydrotreated spent (64742-58-1): Dermal LD50 Rabbit >4480 mg/kg

**Acute Effects**
- May be harmful if swallowed. May irritate eyes and skin. May cause throat irritation, nausea, vomiting and diarrhea. Aspiration hazard: breathing product into lungs during ingestion or vomiting may cause lung injury and possible death.

**Carcinogenity**

**Sensitization**
- Based on best current information, there is no known human sensitization associated with this product.

**Mutagenicity**
- Experimental evidence suggests that this product does not cause mutagenesis.

**Reproductive toxicity**
- Based on current information, there is no known reproductive toxicity associated with this product.

**Teratogenicity**
- Based on best current information, there is no known teratogenicity associated with this product.

SECTION 12: Ecological Information

- **BOD and COD**: Not Established
- **Biodegradability/OECD**: Not Established
- **Mobility**: Not Established
- **Products of Degradation**: Not Established
- **Toxicity of the Products of Biodegradation**: Not Established
- **Special Remarks on the Products of Biodegradation**: Not Established

SECTION 13: Disposal Considerations

**Waste Information**
- Waste should be disposed of in accordance to local, federal and state environmental control regulations.

Consult your local or regional authorities.

SECTION 14: Transport Information

<table>
<thead>
<tr>
<th>Regulatory Information</th>
<th>UN Number</th>
<th>Proper Shipping Name</th>
<th>Class</th>
<th>Packing Group</th>
<th>Label</th>
<th>Additional Information</th>
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<td>-</td>
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<td>Canada (TDG)</td>
<td>Not Regulated</td>
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<td>-</td>
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<tr>
<td>Mexico (NOM-004-SCT2-1994)</td>
<td>Not Regulated</td>
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<td>IMDG Code</td>
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<td>-</td>
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<td>-</td>
</tr>
</tbody>
</table>

**NAERG** (North American Emergency Response Guide): Not applicable
SECTION 15: Regulatory Information

United States

U.S. Federal Regulations: All components listed.
- TSCA 8(b) inventory: All components listed.
- SARA 302/304/311/312 extremely hazardous substances: No products found.
- SARA 302/304 emergency planning and notification: No products found.
- SARA 302/304/311/312 hazardous chemicals: No products found.
- SARA 311/312 MSDS distribution – chemical inventory – hazard identification: No products found.
- Clean Water Act (CWA) 307: No products found.
- Clean Water Act (CWA) 311: No products found.
- Clean Air Act (CAA) 112 accidental release prevention: No products found.
- Clean Air Act (CAA) 112 regulated flammable substances: No products found.
- Clean Air Act (CAA) 112 regulated toxic substances: No products found.

State Regulations: California prop. 65: No products found.

Canada

WHMIS (Canada): Not WHMIS regulated
- CEPA DSL: All components listed.

"This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations."

Mexico

Classification: Flammability: 1 Health: 1 Reactivity: 0 Special:

SECTION 16: Other Information

Label Requirements: USE WITH CARE.
- USE AS DIRECTED.

Hazardous Material Information System (U.S.A.):

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEALTH</td>
<td>1</td>
</tr>
<tr>
<td>FLAMMABILITY</td>
<td>1</td>
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<tr>
<td>PHYSICAL HAZARD</td>
<td>0</td>
</tr>
<tr>
<td>PERSONAL PROTECTION</td>
<td>B</td>
</tr>
</tbody>
</table>
CommQuench™ 102

Material Safety Data Sheet

National Fire Protection Association (U.S.A.)

Flammability: 1
Instability: 0
Health: 1
Special

Date of Issue: February 26, 2014
Date of Previous Issue: September 30, 2010

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy of completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.