Since 1903, the Sonneborn name has been synonymous with the world’s highest quality refined hydrocarbons. Our goal is to provide customers with premium products, superior technical capabilities, and dependable service so that they receive the very best value in the industry.

In 2010, Sonneborn acquired the sales and marketing rights for Petronate® natural sodium sulfonates, products we pioneered decades ago. We have been manufacturing these same sulfonates all along; now Sonneborn has acquired them for direct sale. As with all the products we make, Sonneborn is committed to providing sodium sulfonates with the highest quality and dependable service that our customers require and have come to rely upon.

The superior emulsion stability, anticorrosion characteristics and the predictable, consistent performance of our high quality Petronate® natural sodium sulfonates, are now reliably available from Sonneborn, a name you know you can trust to deliver.
Sonneborn’s sodium sulfonates are made from natural petroleum oil feedstocks. As a result, these sulfonates contain a very broad molecular weight distribution. This broad distribution enhances the ability of our sulfonates to interact with the oil and to provide excellent emulsification. In contrast, synthetic sodium sulfonates of the same molecular weight have a much narrower distribution and therefore, do not function as well.

**Features**

- Natural Petroleum Sulfonate Product
- Range of Molecular Weights Available
- Consistent Quality
- Reliable Supply
- High Compatibility with Basestocks
- High Storage Stability
- Global Supplier
- Global Registration
- Proven Track Record

**Benefits**

- Performance
- Formulator Flexibility
- Quality Control
- Production Plan Assurance
- Raw Material Flexibility
- Plant Handling
- Supply Chain Management
- EH&S Management
- Industry Wide Acceptance
Petroleum Sulfonates Composition

Sonneborn’s sodium sulfonates are composed of a poly-alkylated aromatic ring system, where the alkylates are primarily branched and short-chained. Conversely, typical synthetic sodium sulfonates are alkylated aromatic ring systems where the alkylates are linear and long-chained. The short-chained, branched alkyl aromatic groups found in Sonneborn’s sodium sulfonates provide benefits in both emulsion and rust prevention by improving the compatibility with the base oil.

Application Information

Sonneborn’s sodium sulfonates provide excellent emulsion quality and corrosion resistance in customer formulations. While the lower molecular weight sulfonates provide excellent emulsion performance, the higher molecular weight sulfonates provide unsurpassed rust prevention. Depending on the application, the balance of these two properties is critical for maximum performance.

In oilfield and mining applications which are less concerned with rust prevention, the preference is the strong emulsification properties of Petronate® L. However, in the industrial oils market, where rust prevention is key, the preference is for the corrosion prevention properties of Petronate H and Petronate HH. In the metalworking industry, a balance of both the emulsion and corrosion performance is critical to a successful formulation and Petronate HL is preferred for its balanced emulsion and corrosion resistant properties. Finally, Sonneborn has the capability to make special blends of our products in the desired ratios upon request.

Metalworking

- Emulsifiers
- Demulsifiers
- Dispersing Agents
- Rust Preventatives

Oilfield

- Flooding Compounds
- Crude Oil Emulsifiers
- Bitumen Frothing
- Oilsand Floation
- Flocculants

Industrial Oils

- Emulsifiers
- Demulsifiers
- Dispersing Agents
- Moisture Absorbants
- Wetting Agents
- Rust Preventatives
- Degreasing Agents
- Detergents

Mining

- Ore Flotation
- Phosphate Sand Floation
- Quartz Sand Floation

Structural Models

\[
\text{SO}_3\text{Na} \quad \text{R}_1 \quad \text{R}_2 \quad \text{R}_3
\]

Model Natural

\[
\text{SO}_3\text{Na} \quad \text{R}_3
\]

Model Synthetic

where the chain length of \( R_1 \), \( R_2 \), and \( R_3 \) are shorter than \( R_4 \).
**Petronate Products**

Our line of Petronate® sodium petroleum sulfonates vary in average molecular weight from 425 to 540. They are natural products which are transparent, dark brown liquids that are readily soluble in mineral oil.

<table>
<thead>
<tr>
<th>Property *</th>
<th>Method</th>
<th>Petronate L</th>
<th>Petronate HL/L</th>
<th>Petronate HL</th>
<th>Petronate 480</th>
<th>Petronate H</th>
<th>Petronate HH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Sulfonate, wt %</td>
<td>ASTM D3712</td>
<td>62</td>
<td>62</td>
<td>62</td>
<td>62</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>Oil, wt %</td>
<td>ASTM D3712</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>ASTM D3712</td>
<td>425</td>
<td>440</td>
<td>455</td>
<td>470</td>
<td>500</td>
<td>540</td>
</tr>
<tr>
<td>Inorganic Salt, wt %</td>
<td>ASTM D3712</td>
<td>max 1.0</td>
<td>max 1.0</td>
<td>max 1.0</td>
<td>max 1.0</td>
<td>max 1.0</td>
<td>max 1.0</td>
</tr>
<tr>
<td>Free Alkalinity, mgKOH/g</td>
<td>S.A.M. 150</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Water, wt %</td>
<td>ASTM D95</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Color (dilute)</td>
<td>ASTM D1500</td>
<td>max 5.0</td>
<td>max 5.0</td>
<td>max 6.0</td>
<td>max 5.0</td>
<td>max 5.0</td>
<td>max 5.0</td>
</tr>
<tr>
<td>Flash Point, COC, °C</td>
<td>ASTM D92</td>
<td>190</td>
<td>190</td>
<td>190</td>
<td>205</td>
<td>210</td>
<td>230</td>
</tr>
<tr>
<td>Density @ 20°C kg/m³</td>
<td>ASTM D4052</td>
<td>1020</td>
<td>1020</td>
<td>1015</td>
<td>1010</td>
<td>1010</td>
<td>1010</td>
</tr>
</tbody>
</table>

* typical values
Corrosion Protection Industry

Sonneborn produces a range of oxidized petrolatums (Oxpets) that are used primarily for rust prevention and anti-corrosion. These chemically oxidized petrolatums are mixtures of long-chained, branched and cyclic hydrocarbons plus their derivates such as organic acids, oxi-acids and esters. The acids present in our Oxpets can be neutralized with bivalent metal oxides, yielding end-products with a high molecular weight and wax-like nature which have excellent water-resistant properties and corrosion protection.

**APPLICATION INFORMATION**

Neutralization is best achieved with calcium hydroxide or zinc oxide in a white spirit dilution. This white spirit solution of neutralized products provides improved anti-corrosion properties through the addition of a high molecular weight petroleum sulphonate. To obtain special characteristics in the end-product it is also possible to add Petrolatum 640/20 or Tech Pet F. The end-product may be sprayed or brushed on the metal surface to be protected.

### OXPET PRODUCTS*

<table>
<thead>
<tr>
<th>Property</th>
<th>Method</th>
<th>WH-1</th>
<th>WH-6</th>
<th>LA 1531/20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid number, mg KOH/G</td>
<td>ASTM D 664</td>
<td>48-53</td>
<td>42-47</td>
<td>17-22</td>
</tr>
<tr>
<td>Saponification number, mg KOH/g</td>
<td>DIN S1559</td>
<td>100</td>
<td>110</td>
<td>47</td>
</tr>
<tr>
<td>Congealing Point, °C</td>
<td>ASTM D 938</td>
<td>56</td>
<td>64</td>
<td>38</td>
</tr>
<tr>
<td>Ash, % by weight</td>
<td>ASTM D 482</td>
<td>max 0.5</td>
<td>max 0.5</td>
<td>max 0.5</td>
</tr>
<tr>
<td>Flash Point, COC, °C</td>
<td>ASTM D 92</td>
<td>min 150</td>
<td>min 150</td>
<td>min 150</td>
</tr>
<tr>
<td>Colour, diluted</td>
<td>ASTM D 1500</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Density at 100 °C, kg/m³</td>
<td>ISO 3828</td>
<td>850-950</td>
<td>850-950</td>
<td>800-990</td>
</tr>
</tbody>
</table>

### PETROLATUM-TECHNICAL PRODUCTS*

<table>
<thead>
<tr>
<th>Property</th>
<th>Method</th>
<th>Petrolatum 640/20</th>
<th>Tech Pet F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drop Melting Point, °C</td>
<td>ASTM D 127</td>
<td>35-45</td>
<td>57-66</td>
</tr>
<tr>
<td>Cone Melting Point, °C</td>
<td>ASTM D 939</td>
<td>35-43</td>
<td>160-190</td>
</tr>
<tr>
<td>Cone Penetration at 25 °C, dm³</td>
<td>ASTM D 937</td>
<td>175-195</td>
<td>Brown</td>
</tr>
<tr>
<td>Colour</td>
<td></td>
<td></td>
<td>Brown</td>
</tr>
</tbody>
</table>

* typical values
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