STEPLAN® 3T

Chemical Structure

\[
\begin{align*}
&\text{O} \\
&\text{CH}_2\text{O} - \text{CR} \\
&\text{CH}_3\text{CH}_2\text{CCH}_2\text{O} - \text{CR} \\
&\text{CH}_2\text{O} - \text{CR} \\
&\text{O} \\
\end{align*}
\]

\( (R = \text{C}_7-9) \)

STEPLAN 3T is a trimethylolpropane tricaprylate tricaprate polyol ester.

Chemical Description

CAS Registry No.

11138-60-6

INCI Name

Trimethylolpropane Tricaprylate/Tricaprate

Applications

Functional Properties

• Primary or secondary emollient
• Feel enhancer (soft, dry, non-oily)
• Solubilizing agent for mineral oil, silicone, lanolin and fragrances

End Product Uses

• Creams and Lotions
• Bath Oils
• Liquid and Cream Make-ups
• Lipsticks
• Sun tan Lotions and Creams
• Hair Conditioners
• Hair Preparations
• Pre and After-Shave Products

Typical Properties

Appearance at 25°C.................................................................................................... Water white
Activities, % .................................................................................................................. 100
Moisture, % .................................................................................................................. 0.1
Color, APHA.................................................................................................................. <100
Viscosity, cps at 25°C .................................................................................................... 25
Viscosity, cps at 60°C .................................................................................................... 10
Pour Point, °C (°F) ................................................................................................... -49 (-56)
Flash Point (PMCC), °C (°F) .................................................................................. >94 (>201)
Density, g/ml (lbs/U.S. gal)....................................................................................... 0.947 (7.9)
RVOC, U.S. EPA, % .................................................................................................... 0
Refractive Index at 25°C ............................................................................................ 1.4513

Solubility

Water .............................................. insoluble
Alcohol (IPA) ...................................... soluble
Mineral Oil ............................................ soluble
Vegetable Oil (Peanut) ................. soluble

Biodegradability

Product is biodegradable. Additional information is available upon request.

Toxicity

STEPLAN 3T is practically non-toxic orally (LD\(_{50}\) >5 g/kg) and it causes slight skin and minimal eye irritation. 

STEPLAN® is a registered trademark of Stepan Company.
Normal safety precautions (i.e. gloves and safety goggles) should be employed when handling STEPAN 3T. Contact with the eyes and prolonged contact with the skin should be avoided. Wash thoroughly after handling material.

It is recommended that STEPAN 3T be stored in sealed containers and kept in a cool, dry place. Prolonged storage at temperatures above 90°F (32°C) should be avoided. Avoid overheating or freezing.

Standard Packaging: STEPAN 3T is available in 55 gallon drums (net weight 400 lb/181 kg).

All components of STEPAN 3T are listed in the following countries; the registration numbers for the active ingredient is included in parentheses: Europe (EINECS 268-595-1), Japan (ENCS 2-769), Canada (DSL 11138-60-6), Australia (AICS 11138-60-6), and United States (TSCA 11138-60-6) is.

Sprayable Body Lotion (Formulation# 889)

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Wt, % (as is)</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.I. Water</td>
<td>q.s. 100.0</td>
<td>Carrier</td>
</tr>
<tr>
<td>Glycerin (Uniqema)</td>
<td>1.5</td>
<td>Humectant</td>
</tr>
<tr>
<td>Polawax (Croda) Emulsifying Wax, NF</td>
<td>1.5</td>
<td>Emulsifier</td>
</tr>
<tr>
<td>STEPAN 3T</td>
<td>10.0</td>
<td>Emollient</td>
</tr>
<tr>
<td>HALLSTAR Cetearyl Alcohol</td>
<td>0.5</td>
<td>Bodifying Agent</td>
</tr>
<tr>
<td>HALLSTAR GMS S.E./A.S</td>
<td>1.0</td>
<td>Viscosity Stabilizer</td>
</tr>
<tr>
<td>Fragrance, Dye, Preservative</td>
<td>q.s.</td>
<td>Additives</td>
</tr>
<tr>
<td>Citric Acid</td>
<td>q.s.</td>
<td>Additive</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>q.s.</td>
<td>Additive</td>
</tr>
</tbody>
</table>

Mixing Procedures:
Into a suitable vessel equipped with heating, cooling and agitation prepare water phase by adding D.I. Water and Glycerin. Begin to mix. Start heating to 70°C. In a separate container, prepare oil phase by adding Polawax, STEPAN 3T, HALLSTAR Cetearyl Alcohol and HALLSTAR GMS S.E./A.S. Heat to 70-75°C. Increase agitation. Slowly add oil phase to the water phase. Emulsify at 70-75°C for 20-25 minutes. Start cooling to room temperature with continuous agitation. Adjust pH to 6.0 - 6.5, if necessary, with Citric Acid or Sodium Hydroxide. Cool to ambient temperature. Add Preservative, Dye and Fragrance.

Physical Properties:
Appearance at 25°C ................................................................. Opaque, lotion
pH, at 25°C .................................................................................. 6.0 - 6.5
Viscosity, cps at 25°C #4/20 ..................................................... 500

Stability:
3 months at 25°C ............................................................................ stable
1 month at 42°C ............................................................................ stable
1 week at 50°C ............................................................................ stable

A Material Safety Data Sheet is available upon request.

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