Silicone Antifoam Agents for Industrial Applications

COMPOSITION AND REGULATORY STATUS

Trans-Chemco’s line of industrial-grade antifoam agents are water-based, silicone emulsions (as polydimethylsiloxane) designed to control foam in a variety of aqueous industrial applications. The functional properties developed especially for these antifoams to eliminate and prevent excessive foam include: quick dispersibility, slight insolubility, relative stability, and a high degree of spreadability in the foaming system. The primary active ingredient is polydimethylsiloxane, an inert silicone polymer with the following structure:

\[
\text{CH}_3 \quad \left[\begin{array}{c|c}
\text{CH}_3 & \text{Si} - \text{O} \\
\hline
\text{Si} & \text{O} \\
\text{Si} & \text{CH}_3 \\
\text{CH}_3 & \text{CH}_3
\end{array}\right] n \text{ CH}_3
\]

n represents repeating dimethylsiloxane units

Our industrial-grade silicone antifoam emulsions utilize only food-grade, nonionic emulsifiers and do not contain reportable levels of any hazardous ingredient. Therefore, when used properly, these antifoam agents are considered a relatively safe class of chemical additives.

APPLICATION AND USAGE GUIDELINES

To control foam, our silicone antifoam agents may be added “as is” directly to the foaming process, or they may be diluted with water immediately prior to application. While it is sometimes preferable to dilute the antifoam prior to use, please keep in mind that a diluted antifoam is not stable for a long period of time and should be used as soon as possible. It is also advisable to ensure that the diluted antifoam is periodically mixed or thoroughly stirred prior to use. (Note: Undiluted antifoam does not require stirring prior to use.) Do not store diluted antifoam agents for a long period of time because product stability may be compromised.

Each foaming problem is unique and requires different treatment levels of antifoam. Use only the minimum amount of antifoam required to control the foam. Experimentation is usually necessary to optimize the amount of antifoam used in a given process. A good starting point is in part dependent upon which antifoam product is being tested, but 50-500 ppm is an acceptable range with which to begin testing. As with any antifoam or defoamer, thorough testing should always be conducted to determine the suitability and compatibility of the antifoam with the foaming system and processing equipment.

STORAGE

Trans-Chemco’s silicone antifoam agents are stable and long-lasting; nevertheless, the products should be protected from freezing and prolonged exposure to direct sources of heat, moisture, and sunlight. Should the antifoam freeze, thaw the product at room temperature with the container closed and gently stir once completely thawed. A slight change in appearance may result, but performance should not be affected. Storage temperatures at or below room temperature are preferred, but not necessary. Antifoam emulsions are ultimately perishable commodities and should be afforded an equivalent level of care. Use the product in a timely fashion after initially opening the container, and close tightly after use. Trans-Chemco recommends that unopened antifoam agents be used within one year.
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PRODUCT & PACKAGING INFORMATION

<table>
<thead>
<tr>
<th>Product</th>
<th>Active Content</th>
<th>Appearance</th>
<th>Weight per Gallon</th>
<th>Typical Viscosity @ 20 rpm</th>
<th>Typical pH (neat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRANS-1030 D</td>
<td>3% Silicone</td>
<td>Thin, milky-white liquid</td>
<td>8.34 #</td>
<td>200 – 300 cP</td>
<td>7.25 – 8.25</td>
</tr>
<tr>
<td>TRANS-5 D</td>
<td>5% Silicone</td>
<td>Thin, milky-white liquid</td>
<td>8.34 #</td>
<td>100 – 200 cP</td>
<td>3.75 – 4.25</td>
</tr>
<tr>
<td>TRANS-101 AD</td>
<td>10% Silicone</td>
<td>Opaque white liquid</td>
<td>8.42 #</td>
<td>400 -1200 cP</td>
<td>3.50 – 4.00</td>
</tr>
<tr>
<td>TRANS-102 D</td>
<td>20% Silicone</td>
<td>Opaque white liquid</td>
<td>8.35 #</td>
<td>1000 – 1500 cP</td>
<td>3.50 – 4.00</td>
</tr>
<tr>
<td>TRANS-103 AD</td>
<td>30% Silicone</td>
<td>Opaque white liquid</td>
<td>8.41 #</td>
<td>2000 – 3500 cP</td>
<td>3.50 – 4.50</td>
</tr>
<tr>
<td>TRANS-103 D</td>
<td>30% Silicone</td>
<td>Thick white liquid</td>
<td>8.37 #</td>
<td>4000 – 7000 cP</td>
<td>8.00 – 8.50</td>
</tr>
</tbody>
</table>

PACKAGING OPTIONS

Trans-Chemco antifoam emulsions are available in 55-gallon blue poly drums (net wt. 450 lb.) & 5-gallon HDPE pails (net wt. 40 lb.). By special request, the following packaging options are also available: bulk tanker, 275-gallon totes, 55-gallon lined openhead or tighthead steel drums, 30 or 15-gallon poly drums, and 1-gallon jugs. Special requests may necessitate longer lead times.

SOME INDUSTRIAL APPLICATIONS UTILIZING ANTIFOAMS

CHEMICAL PROCESSING
- Hot Aqueous Systems
- Ink Manufacture-Water Based
- Insecticides
- Latex Processing
- Resin Polymerization
- Soap Manufacture
- Starch Processing
- Wool Fats

MISCELLANEOUS
- Lagoon Aeration
- Boiler Water Defoaming
- Carpet Cleaning After-Tank
- Jacuzzi Baths
- Leather Finishing
- Metalworking
- Rendering
- Swimming Pools

PETROLEUM & PLASTIC
- Gas Scrubbing (DEA)
- Glycol Dehydrators
- Propane Deasphalting
- Udex Units
- Latex Binders
- Vinyl Latex Emulsions

WASTE TREATMENT
- Aeration
- Evaporation
- Neutralization
- Settling Ponds

LIMITED WARRANTY – PLEASE READ CAREFULLY

For any given application, it is the responsibility of the end-user to assess the antifoam for suitability, performance, and safety. Trans-Chemco’s sole warranty is that the antifoam, as supplied at the time of shipment, will meet the specifications described on the Certificate of Analysis. All other warranties, either express or implied, are disclaimed by Trans-Chemco, including the warranties of merchantability and of fitness for use. Trans-Chemco’s sole liability is limited to the refund of the purchase price or replacement of any antifoam shown to be other than as warranted. Trans-Chemco disclaims any liability for any incidental or consequential damages resulting from the use of this product.

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