XIAMETER® AFE-3034 Antifoam Emulsion

Silicone organo-modified antifoam emulsion

FEATURES
- Highly effective antifoam for water based applications
- Antifoam emulsion with a high active content and outstanding dilution stability
- Excellent stability and compatibility in aqueous systems
- Long lasting antifoam performance
- Low tendency to cause defects in downstream surface sensitive applications e.g. printing

APPLICATIONS
- Foam control in aqueous systems, where good compatibility and long lasting antifoam performance is required.
- Certain synthetic lattices - during polymerization, stripping, filtration and internal handling e.g. pumping (see application examples).
- Certain synthetic lattices - eliminates foam and increases density in final applications such as lacquers or in polymer reinforced cement.

TYPICAL PROPERTIES
Specification Writers: These values are not intended for use in preparing specifications. Please contact your local XIAMETER® sales representative prior to writing specifications on this product.

<table>
<thead>
<tr>
<th>CTM</th>
<th>Test</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0176B</td>
<td>Appearance</td>
<td></td>
<td>Creamy, milk-white liquid</td>
</tr>
<tr>
<td>0208</td>
<td>Non-volatile content</td>
<td>%w/w</td>
<td>58</td>
</tr>
<tr>
<td>0007A</td>
<td>pH</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>0050</td>
<td>Viscosity²</td>
<td>mPa.s</td>
<td>1900</td>
</tr>
<tr>
<td></td>
<td>Emulsifier type</td>
<td></td>
<td>Non-Ionic</td>
</tr>
<tr>
<td></td>
<td>Diluents</td>
<td></td>
<td>Water</td>
</tr>
</tbody>
</table>

¹CTM: Corporate Test Method, copies of CTMs are available on request.
²LVF spindle #3 at 30rpm

DESCRIPTION
XIAMETER® AFE-3034 Antifoam Emulsion has a small and very narrow particles size distribution. Therefore it shows exceptionally good dilution stability and compatibility with products like polymer lattices, cutting oils or dye liquors.

XIAMETER AFE-3034 Antifoam Emulsion has only a low tendency to cause defects in surface sensitive applications because of the synergetic mixture of different oregano modified slogans.

HOW TO USE
XIAMETER AFE-3034 Antifoam Emulsion can be added either as supplied or pre-diluted to the foaming medium. It is, however, recommended to pre-dilute XIAMETER AFE-3034 Antifoam Emulsion in a ratio 1:10 with water when added to low viscous systems to provide improved homogeneity and stability. A 1:10 dilution will be stable for at least 1 month when stored at room temperature.

The addition level strongly depends on the nature of the foaming system and it can range from 100ppm when used as process aid to 0.5% in dilutable concentrates where a long lasting antifoam performance is required.

Application Examples
XIAMETER AFE-3034 Antifoam Emulsion is easily incorporated into synthetic polymer lattices. Simple mixing quickly disperses the antifoam emulsion into
styrene-butadiene, and acrylic lattices. The small particle size of the antifoam ensures excellent long term stability in the latex. Typical addition levels are 0.2-0.5% of antifoam added to the latex emulsion.

Example 1: Styrene-Butadiene latex
0.2% of XIAMETER AFE-3034 Antifoam Emulsion is added to a Styrene-Butadiene latex intended for reinforcement of cement. The latex is shaken vigorously to produce foam. The volume of foam produced is noted as well as the speed of foam breakdown. Foam breakdown is very important in order to keep foam under control in an industrial situation where latex is being pumped around a factory via polymerization vessels, screening trays, filtration units and drumming off operations. See Table 1 for more information.

Example 2: Polymer reinforced cement
Styrene-Butadiene latex, with and without antifoam, is used to reinforce cement. Addition of latex to cement dramatically changes the foam characteristics of the cement. Polymer reinforced cement produces more foam than normal cement. The foam is often present as entrapped air and is very stable. Conventional antifoams tend to work well on surface foam but do not destroy entrapped foam and hence are of limited benefit in polymer reinforced cements. XIAMETER AFE-3034 Antifoam Emulsion has been specially developed to prevent air becoming entrapped in the mixing process. Any air that attaches itself to the hydrating cement article is quickly removed by the special silicone polymers in XIAMETER AFE-3034 Antifoam Emulsion. Excellent specific gravities are obtained in the polymer reinforced cement with consequent benefits in appearance, dustiness and strength. See Table 2 for more information.

PRODUCT SAFETY INFORMATION
PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. Before handling, read product and material safety data sheets and container labels for safe use, physical, environmental, and health hazard information. The material safety data sheet is available on the XIAMETER® web site at www.xiameter.com.

STORAGE AND TRANSPORT
Product should be stored between 4 and 50°C (39 and 122°F) in original, unopened containers. The most up-to-date shelf life information can be found on the XIAMETER Web site in the Product Detail page under Sales Specification.

During prolonged storage there may be a slight tendency for product separation; therefore, it is recommended that XIAMETER AFE-3034 Antifoam Emulsion be gently agitated prior to use to ensure homogeneity.

As water based material this product should be protected from freezing. Once it has frozen this material is damaged and cannot be used or reworked.

LIMITATIONS
This product is neither tested nor represented as suitable for medical or pharmaceutical uses. Not intended for human injection. Not intended for food use.

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY
The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that our products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

Dow Corning's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

DOW CORNING SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.

DOW CORNING DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.
Table 1: Example: Styrene-Butadiene latex.

<table>
<thead>
<tr>
<th>Defoamer</th>
<th>Concentration in latex (%)</th>
<th>Foam in latex (ml)</th>
<th>Foam breakdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank</td>
<td>---</td>
<td>39</td>
<td>Nil</td>
</tr>
<tr>
<td>XIAMETER AFE-3034 Antifoam Emulsion</td>
<td>0.2</td>
<td>12</td>
<td>Fast</td>
</tr>
</tbody>
</table>

Foam height in a 100ml calibrated cylinder containing 50ml of latex. The solution was shaken vigorously 20 times by hand.

Table 2: Example: Polymer reinforced cement

<table>
<thead>
<tr>
<th>Defoamer</th>
<th>Concentration in latex (%)</th>
<th>Specific Gravity in cement (g/cm³)</th>
<th>Percentage air in cement (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank</td>
<td>---</td>
<td>1.888</td>
<td>20.7</td>
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<tr>
<td>Conventional defoamer</td>
<td>0.3</td>
<td>1.957</td>
<td>17.8</td>
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<tr>
<td>XIAMETER AFE-3034 Antifoam Emulsion</td>
<td>0.2</td>
<td>2.167</td>
<td>9.0</td>
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<tr>
<td>XIAMETER AFE-3034 Antifoam Emulsion</td>
<td>0.3</td>
<td>2.284</td>
<td>4.7</td>
</tr>
</tbody>
</table>

Figure 1: Particle size distribution.

- White: Particle size distribution of XIAMETER AFE-3034 Antifoam Emulsion
- Dark: Particle size distribution of a standard silicone antifoam emulsion

Measured with Coulter LS Particle Size Analyser