

Geolite* Modifier 206

Description

Geolite Modifier 206 is a stabilizing additive that offers a technology that can eliminate or dramatically reduce the use of auxiliary blowing agents (ABAs) in many grades of conventional slabstock foam.

Like our earlier Geolite products, this technology is based on the principle of lowering the hardness of foam by reducing the isocyanate index, permitting the use of more water and less blowing agent to achieve desired foam hardness.

The use of Geolite Modifier 206 facilitates the production of many foam grades, at very low indices (about 85), while maintaining acceptable physical properties and processing latitude. The addition of a Geolite Modifier is necessary for the production of such low-index foams.

Key Features and Benefits

- Requires no major capital investment
- Uses existing urethane raw materials
- Provides stability for use at TDI index as low as 85
- Often eliminates all ABAs
- Foam properties comparable to conventional foam in most foam grades
- Excellent processability compared with other soft foam technologies
- Useful with varied processing technologies, including mechanical cooling

Typical Physical Properties

| | |
|--------------------------------|--------------|
| Physical Form | Clear liquid |
| Specific Gravity, 20°C | 1.14 |
| Viscosity at 20°C, cSt | 60 |
| Vapor Pressure at 20°C, mm Hg | 17.3 |
| Flash Point °C | None |
| Freezing Point, °C | <-30 |
| Solubility in Water at 20°C | Complete |
| Water Content, % by wt | 33 |
| TDI/Geolite Modifier 206 Ratio | 3.8092/1 |
| Hydroxyl Number, mg KOH/g | 2455 |

Processing Recommendations

Foam Properties

Using Geolite Modifier 206 (with low-index, high-water formulations) yields foam with improved physical properties - near those obtained in conventional, lower water, ABA-based systems. In certain cases (mechanical cooling processes, for example), this technology leads to foams with greatly improved physical properties, including compression sets. Moreover, the use of Geolite Modifier 206 allows the production of soft, ABA-free foams of many densities, ranging from less than 1.2 pcf to greater than 2.5 pcf.

Processing Considerations

The formulated grades of foam using Geolite technology will exhibit higher reaction exotherms than conventional formulations since higher water concentrations are required. This circumstance must be addressed prior to the adoption of this technology. Lower index formulations serve to reduce this high exotherm, but higher than normal exotherms should be expected.

Geolite Modifier 206 utilizes an environmentally-friendly technology. The additive eliminates the emission of ABAs, and when used with low-index formulations, TDI emissions may be greatly reduced.

Geolite Modifier 206 contains 33 percent water. This fact should be considered when calculating a foam formulation.

Formulations

The following are typical formulations utilizing Geolite Modifier 206.

| Component | Parts by Weight | | |
|------------------------------------|-----------------|--------|---------|
| | 1.05/18 | 1.4/20 | 1.75/22 |
| Foam Grade, pcf/25% IFD | 1.05/18 | 1.4/20 | 1.75/22 |
| Polyol, 46 OH# | 100 | 100 | 100 |
| Water, Total | 6.50 | 4.50 | 3.40 |
| Water, Added | 4.85 | 3.51 | 2.5 |
| Stannous Octoate | 0.19 | 0.20 | 0.24 |
| Niix Catalyst A-133 ⁽¹⁾ | 0.27 | 0.33 | 0.37 |
| Niix Silicone L-620 ⁽¹⁾ | 1.1 | 0.9 | 0.8 |
| Geolite Modifier 206 | 5.00 | 3.00 | 2.75 |
| TDI Index | 85 | 90 | 90 |

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Geolite Modifier 206 may also be used with various technologies that utilize CO2 as an auxiliary blowing agent. The formulation below is typical to obtain a 0.85 pcf, 15 IFD foam grade. The use of Geolite Modifier

206 can result in improved processing latitude and better "hand" compared to similar foam made without Geolite Modifier 206.

| | |
|------------------------------------|----------------|
| Foam Grade, pcf/25% IFD | 0.85/15 |
| Polyol, 46 OH# | 100 |
| Water, Total | 4.6 |
| Water, Added | 4.04 |
| CO ₂ | 5.0 |
| Stannous Octoate | 0.2 |
| Niax Catalyst A-133 ⁽¹⁾ | 0.27 |
| Niax Silicone L-631 ⁽¹⁾ | 1.5 |
| Geolite Modifier 206 | 2 |
| TDI Index | 95 |

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Patent Status

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