

Butyl Tape

Application Note

Significant Issue:

Interfibe RT cellulose fibers are used as a reinforcing thixotrope in adhesives and sealants. They provide desirable flow control characteristics that approach those imparted by asbestos. Although RT fibers are not a 1:1 “drop-in” replacement for asbestos, they do have these properties in common with asbestos: good thixotropy imparted to the formulated caulk; the ability to reinforce the bulk caulk and the ability to produce caulks without excessive surface texture.

Customer Objectives:

- Replace asbestos or other high cost fibers
- Obtain lower formulation costs through the reduction of other raw materials
- Maintain product flexibility, sag resistance and flow

Interfibe Solution:

By formulating with Interfibe RT fibers, the customer receives economic benefit by reducing the use of more costly synthetic fibers and benefits environmentally through the use of a safe, non-hazardous alternative to asbestos.

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Butyl Based Tape Sealant Formulation Using Interfibe RT

DESCRIPTION

A butyl tape sealant containing asbestos fibers was formulated to replace the asbestos fibers with RT fibers.

The control tape sealant is a non-flow high performance butyl formulation. This material contained a significant amount of asbestos (16%) and is the type of material used in automotive and construction glazing. The goal was to replace the asbestos with RT fibers while maintaining similar performance characteristics.

The asbestos-free formulation was achieved by replacing the 16.1% of asbestos with 5.6% RT fibers and 10.5% ground limestone. The resulting materials were made into 3/8-in. diameter round butyl tapes and tested against standard evaluation procedures. The results can be summarized as follows for the two formulations:

- there were no apparent appearance differences, and
- at room temperature, the materials had similar internal cohesive strengths and hardnesses as indicated by the penetrometer, compression and yield testing.

Formulations

| | BC-1 (control) | BC-2 |
|------------------|----------------|------|
| Butyl rubbers | 18 | 18 |
| Carbon black | 15 | 15 |
| Ppt. silica | 3 | 3 |
| Talc | 20.9 | 20.9 |
| Asbestos (7RF02) | 16.1 | ---- |
| RT fibers | ---- | 5.6 |
| Polybutenes | 10 | 10 |
| Parafinic oil | 17 | 17 |
| Ground limestone | ---- | 10.5 |

Experimental Results

| | BC-1 (control) | BC-2 |
|-------------------|----------------|------------|
| Appearance | | |
| Surface | 8 | 8 |
| Gloss | 8 | 8 |
| Uniformity | 8 | 8 |
| Penetrometer | 8.3 mm | 8.5 mm |
| Force to compress | 13.9 psi | 12.2 psi |
| Melt index | 1.8 g/min. | 3.9 g/min. |
| Flow | 0.0004 in. | 0.0005 in. |
| Yield | 8.6 psi | 10.6 psi |

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