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## ***Thermon Tubing Products Polymeric Jacket Considerations***

May 17, 2013

Thermon offers a variety of jacket options for our tubing products (ThermoTube® ...pre-insulated tubing and TubeTrace® ...heat traced and pre-insulated tubing), including different colors for customers desiring visually distinguishing characteristics from one bundle type to the next. Optional colors are usually based on temperature ratings for given service or applications, but generally is not a priority for most of customers.

The standard jacket offered for ThermoTube and TubeTrace products is our ATP (Arctic Thermoplastic) a special formulation of polyvinyl chloride. The ATP is far and away the most popular and cost-effective jacket material available in the market today. (Other manufacturers offer their own formulations of PVC, so it is considered the most widely used jacket material for tubing and tubing bundles in the world today.

A common alternative to ATP is our TPU (polyurethane) jacket option. TPU is sometimes specified because of its having a higher resistance to abrasion than ATP. (As an example, sometimes tubing bundles are subjected to dragging across a paved area for measuring lengths of bundle or other staging for installation.)

TPU is also considered to be a chloride-free polymer. However, any concerns about free-chlorides in the jacket materials can be relaxed when proper sealing of the bundles eliminates water ingress, thereby eliminating the presence of an electrolyte required for stress corrosion. (Note that TPU is sometimes criticized for a tendency to release toxic gasses in the event it is burned. Thermon can offer alternate elastomeric jackets without chlorides if the concerns [and quantities] warrant this.)

Standard color for ATP and TPU jackets is black. But regardless of color or polymeric material, all jackets are "UV-stabilized" for exposure in direct sunlight throughout the life a typical industrial installation.

On the next page of this flyer is a comparison of the physical properties and ratings for each of these jacket materials.

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***THERMON . . . The Heat Tracing Specialists®***  
www.thermon.com

Corporate Offices: 100 Thermon Dr. • PO Box 609 • San Marcos, Texas 78667-0609  
Phone: 512-396-5801 • Facsimile: 512-396-3627 • Toll Free in North America: **800-820-HEAT (4328)**



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# **Thermon Tubing Products Polymeric Jacket Considerations**

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## **Thermon Tubing Bundle Jacket Comparisons: Physical Characteristics and Ratings**

| <b>Physical Property:</b>           | <b>Jacket Material:</b> | <b>ATP*</b>   | <b>TPU</b>          | <b>ASTM<br/>Test Method</b> |
|-------------------------------------|-------------------------|---------------|---------------------|-----------------------------|
| Design Service Temperature, °C (°F) |                         | 105°C (221°F) | 105°C<br>(221°F)    |                             |
| Brittle Point (Tb), °C (°F)         |                         | -50°C (-58°F) | ~ -80°C<br>(-112°F) | D-746                       |
| Hardness (Durometer A+/-3, 1/10)    |                         | 85/80         | 86                  | D-2240                      |
| RoHS Compliant                      |                         | Yes           |                     |                             |
| Modulus at 100% Elongation (psi)    |                         | 1250          | 1100                | D-412                       |
| Tensile Strength (psi)              |                         | 2600          | 7500                | D-412                       |
| Elongation (%)                      |                         | 400           | 570                 | D-412                       |
| Limiting Oxygen Index (%)           |                         | 26            | 23                  | D-2863                      |
| Halogenated (including Chlorides)   |                         | Yes           | No                  |                             |
| Flame Rating                        |                         | UL-94 HB      | UL-94 HB            |                             |

\*ATP is the "no lead" version of the traditional ATPVC material used by Thermon (a.k.a. Cellex) over 20+ years and millions of feet of insulated tubing bundle products

For additional information or Thermon tubing products or other heat tracing solutions for piping, tanks, and instrumentation, please contact:

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