

## **Key Design Engineering**

### **Discussion: Registration of Plastics in Canada**

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Attempting to register plastic pressure-components can be a very difficult task depending on the type of plastics and the design conditions. As an introduction to the topic, note some of the following points:

- Plastics can be registered under ASME B31.3 Process Piping code, as long as the Hydrostatic Design Stress (HDS) values are available for the material, per A302.3.2(a). The good news is that there are some materials available in ASME B31.3, Table B-1 and in the Plastic Pipe Institute publication TR-4/2008 HDB/HDS/SDB/PDB/MRS.
- Plastics cannot be registered under ASME VIII-1, because they aren't listed in ASME IID.
- TSSA will accept a plastic that has 10:1 factor of safety in lieu of the above. This is accomplished by means of a burst test for which the temperature is representative of the design temperature.
- ABSA requires that creep data be used to demonstrate suitability, when the HDS values are not available. The design temperature is limited to room temperature conditions.
- Since the HDS values relate mostly to the piping industry, it is difficult to find these values for materials that aren't manufactured into pipes.
- Per ASME B31.3 A323.4, "PVC and CPVC shall not be used in compressed air or other compressed gas service." Safety Information Bulletin SB00-8, provided by TSSA, confirms this.

These points are merely a start for plastics registration and are provided for information only. Please contact Key Design Engineering regarding your specific application.