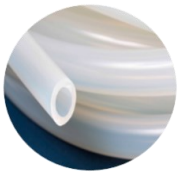
How to correctly select platinum silicone tubing and TPE thermoplastic weldable tubing in bioprocessing design?

In various critical fluid processing and fluid management applications in biopharmaceuticals, platinum silicone tubing and TPE thermoplastic tubing have been widely accepted by practitioners and widely used the entire production process of biotechnology. How should the engineers correctly choose whether to use silicone tubing or TPE thermoplastic tubing during the design of the process & production?

Characteristics of platinum silicone tubing:

- Good elasticity & extremely flexible
- Good transparency, hardness 50-70SHA
- Temperature resistance range from -73 °C to 240 °C
- High purity and low level extractables



MedFlex®SIL 150

Characteristics of TPE thermoplastic pipes:

- Good for aseptic heat sealing and aseptic welding
- Good transparency, hardness 60-70SHA
- Temperature resistances range from -66°C to 135°C
- No silicone oil, low fluid permeability

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Both product materials are:

✓ Can be over molded into integrated tubing systems and assembled into closed systems with bottles or bags.
✓ Validated sterility assurance, comprehensive validation documents and extractable test.
✓ Raw materials do not contain animal origin, and products comply with ISO10993, USP 87,88,151, 643, FDA & European Pharmacopoeia etc.

Differences in materials between the two products:

✓ Silicone tubing can withstand higher temperatures up to 240°C, and the platinum cured silicone tubing has higher purity and lower extractables.
✓ Silicone tubing cannot be sealed and welded, only can be connected by using fittings & connectors.
✓ TPE thermoplastic tubing have lower liquid permeability and better chemical resistance, allowing for aseptic heat-sealing and aseptic welding, more cost-effective in price.

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