Tech Notes

Title: Bath fluid polymerization
Created: 7 Nov 2013
Last Revised:

Applies To: Silicone oils for baths

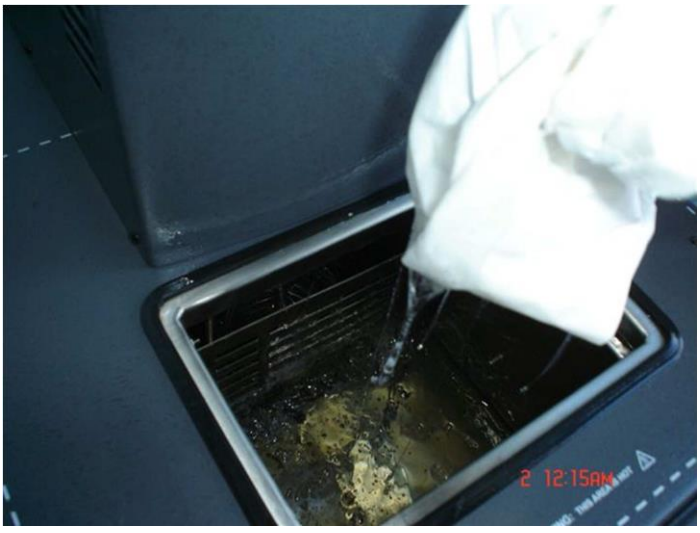
Problem Description: How do I know when my bath oil is polymerizing? How can I prevent it?

Resolution/Work Around:

Here's an area that can get people into trouble! Given enough time, temperature, and catalysts, silicone oils will eventually polymerize. Polymerization is when the molecules in the oil start to form long chains. That is, they'll suddenly turn into a molasses-like "goop," doubling in volume and making an unpleasant mess.

Oxidation is the root cause. While silicone oils may be used safely to near their flash points, susceptibility to polymerization increases with use above their oxidation points, which we list for each silicone oil.

To delay polymerization, limit a bath's time above a fluid's oxidation point, have it idle below its vapor point when not being used, keep contaminants out of the oil (including salts, other oils, and oxidizers), and change your oil if it becomes too dark, too viscous, or too unstable in temperature.



Fluke Calibration
799 E Utah Valley Drive, American Fork, UT 84003 USA
Telephone 801.763.1600
Facsimile 801.763.1010
Internet www.fluke.com

Other Information:

GEL TIME vs. TEMPERATURE

Gel Time at Temperature

Material	**200°C**	**250°C**	**260°C**	**300°C**
DC 550 Fluid		1200 hrs.	200 hrs.	
SH 200/100 cst	360 hrs.	120 hrs.		<24 hrs.
SH 510/1000 cst	>4000 hrs.	2880 hrs.		96 hrs.
SH 710/500 cst	>5000 hrs.	>3000 hrs.		480 hrs.
2-2716			>6700 hrs.	

DC 550 Fluid was a 40g sample in a beaker with 19.35 cm2 surface area DCTS (SH series) products were 40g samples in 100ml beakers 2-2716 was a 5g sample in an aluminum dish.

NON DOCUMENTED DATA, This information is typical of the silicone specified. Thoroughly test prior to using in a specific application.

Fluke Calibration
799 E Utah Valley Drive, American Fork, UT 84003 USA
Telephone 801.763.1600
Facsimile 801.763.1010
Internet www.fluke.com