



# THE FACTS ON OPEN BATHS AND THERMAL FLUIDS

Open baths represent one of the most challenging applications for heat transfer fluids. Without careful consideration for operating temperatures and proper ventilation of the bath itself, the wrong fluid choice could prove unnecessarily costly and ultimately jeopardize workplace safety.

## An “Open” Invitation to Trouble

Oxidation is the number one cause of heat transfer fluid breakdown in open baths. It occurs when the hot fluid is exposed to the surrounding air. This unavoidable exposure to the atmosphere will result in the formation of sludge within the bath itself or gelling of the fluid. The hotter the bath’s operating temperature, the faster and more severe this reaction will be. Very few fluids will hold up under these extreme conditions for more than a few days, however, Duratherm has created a line of heat transfer fluids specifically engineered for this challenging application – see product chart below.

## Take Precautions

An important consideration in open bath applications is off-gassing, which can look like smoke accumulating and rising from the bath. It’s actually just the fluid’s lighter molecules being released as it’s heated, but these vapors can be hazardous and should not be inhaled regardless of the fluid being used. To ensure a safe workplace, all baths should have proper ventilation to protect the operator from the effects of fumes and off-gassing. It’s important to remember that as fluid temperatures rise, off-gassing increases so be sure to account for this when planning for and sizing your ventilation system.

## So What are My Options?

The oxidation and off-gassing that is inherent in open bath applications will cripple most heat transfer fluids in a short period of time. Knowing the importance of choosing the right product that will withstand these harsh conditions, Duratherm has developed a complete line of fluids that have proven themselves – in real world applications – to be not only safe and cost effective but highly durable also. In the chart below you will find a range of fluids with a variety of characteristics to choose from but if for some reason you are unsure of what would work best for you, just give us a call – we’re here to help!

Product	Fluid Chemistry	Max Use Temp	Flash Point	Smoke Point	Viscosity (cSt) at -30°C (-22°F)	Viscosity (cSt) at 20°C (68°F)	Viscosity (cSt) at 40°C (104°F)	Viscosity (cSt) at 100°C (212°F)	Viscosity (cSt) at 200°C (392°F)
<b>Duratherm G</b>	Polyalkylene glycol	260°C (500°F)	248°C (480°F)	166°C (331°F)	5429.06	105.2	42.1	7.6	1.95
<b>Duratherm G-LV</b>	Polyalkylene glycol	204°C (400°F)	181°C (358°F)	135°C (275°F)	3606.1	41.52	16.4	3.21	0.95
<b>Duratherm G-WS</b>	Water Soluble Polyalkylene glycol	260°C (500°F)	275°C (527°F)	204°C (399°F)	2542	124	51.91	12.4	1.4
<b>Duratherm S</b>	Polydimethylsiloxane (silicone)	204°C (400°F)	323°C (615°F)	204°C (399°F)	156.02	50.63	36.13	16.66	7.3