GUIDE

Libra-785-Series

Isotech

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Liquid Selection Guide

When selecting a liquid for a calibration bath a number for factors need to be taken into account, temperature range, health and safety considerations, cost and operating life. For a specific fluid its properties such as boiling point, viscosity, specific heat and expansion coefficient need to be considered.

If calibrating over a limited range, say from 5°C to 90°C then water may be used with is ideal in many ways - low cost, safe and readily available.

For many labs though there will be a requirement to calibrate over much wider ranges.

For low temperature calibration alcohol or a mixture of alcohol and water can be used. Care needs to be taken as alcohols can be toxic and flammable. There are nontoxic alternatives, including Florinert™ from 3M™ and Halocarbon 0.8 from Halocarbon. The disadvantage is that these fluids can be expensive compared to alcohol and can also evaporate quickly, see www.3m.com and www.halocarbon.com for further information.

For high temperature calibration the choice is usually that of a silicone oil. Silicone oils can be used at low temperatures too but icing can be a problem, particularly if a bath is used for long periods at low temperatures.

The practise at Isotech is to use one bath with a low temperature liquid, and a second with oil for higher temperatures and this is our recommendation. If an oil is used below the dew point water will condense into the open bath. If the bath is then used above 100°C the expansion of water present in the bath to steam can force the liquid from the bath creating a serious hazard. This is true for all open oil baths and the reason why Isotech do not recommend using an oil both below the dew point, and then above 100°C

Isotech do not recommend the use of corrosive liquids such as saline solutions and others as any spillage or dripping can cause damage to other parts of the baths.

Isotech Oils for Hydra, Orion, 785 and 915

		Minimum Temperature	Maximum Temperature
915/07	Medium Silicon Oil	40°C	180°C
915/08	High Silicon Oil	150°C	250°C
915/09	Very High Silicon Oil	40°C	288°C
936-06-07	C10 Silicon Oil	-35°C	140°C
580-06-09	C20 Silicon Oil	20°C	200°C

- Provision for adequate fume extraction needs to be made when using any open liquid bath.

  The requirement will vary depending on the liquid used, and the temperature range.

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