

# POPULAR

## NON CORRODABLE ELECTRIC IMMERSION HEATER

### CHEMICAL RESISTANCE CHART

The following information is intended as a guide for the use of the Polaris Popular Electric Heater in various chemical solutions. It is based on information gathered from various sources which are believed to be reliable and is intended for use by persons having technical skill and at their own discretion and risk. We make no warranties expressed or implied and can assume no liability in connection with the use of this information since

various factors outside our control may affect suitability of materials in particular situations. Although the table may indicate satisfactory service for individual chemicals, certain combinations may have adverse effects upon the heater. For chemical solutions not indicated in the table or any questionable use, always consult the manufacturer or your own chemical supplier. Where stated, concentrations are w/w.

**THE FOLLOWING CHEMICAL SOLUTIONS ARE SATISFACTORY WITHIN THE LIMITS SHOWN AND UNLESS OTHERWISE INDICATED A MAXIMUM OPERATING TEMPERATURE OF 100°C CAN BE TOLERATED.**

SOLUTION	CONCENTRATION	SOLUTION	CONCENTRATION	SOLUTION	CONCENTRATION
Acetic Acid – CH <sub>3</sub> COOH	97% TO 80°C 80% TO 100°C	Gold/Silver Plating Solutions		Silver/Gold Plating Solutions	
Aluminium		Hydrochloric Acid – HCl	30% at 60°C 10% at 100°C	Sodium	
Chloride – AlCl <sub>3</sub>	Saturated	Hydrofluoric Acid – HF	20% at 60°C 60% at 40°C	Carbonate – Na <sub>2</sub> CO <sub>3</sub>	Saturated
Fluoride – AlF <sub>3</sub>	Saturated	Hydrogen Peroxide – H <sub>2</sub> O <sub>2</sub>	30% at 75°C	Chlorate – NaClO <sub>3</sub>	50%
Nitrate – Al(NO <sub>3</sub> ) <sub>3</sub>	Saturated	Lead Fluoroborate – Pb(BF <sub>4</sub> ) <sub>2</sub>	Saturated	Chloride – NaCl	Saturated
Sulphate – Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	Saturated	Magnesium		Cyanide – NaCN	Saturated
Ammonium		Chloride – MgCl <sub>2</sub>	Saturated	Fluoride – NaF	Saturated to 60°C
Fluoride – NH <sub>4</sub> F	25% to 60°C	Nitrate – Mg(NO <sub>3</sub> ) <sub>2</sub>	Saturated	Hydroxide – NaOH	50% to 50°C 10% to 100°C
Chloride – NH <sub>4</sub> Cl	Saturated	Sulphate – MgSO <sub>4</sub>	Saturated	Nitrate – NaNO <sub>3</sub>	50%
Hydroxide – NH <sub>4</sub> OH	50% to 50°C 10% to 100°C	Mercury		Nitrite – NaNO <sub>2</sub>	50%
nitrate – NH <sub>4</sub> NO <sub>3</sub>	Saturated	Chloride – HgCl <sub>2</sub>	Saturated	Sulphate – Na <sub>2</sub> SO <sub>4</sub>	Saturated
sulphate – (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	Saturated	Nitrate – Hg(NO <sub>3</sub> ) <sub>2</sub>	Saturated	Sulphate – NaSO <sub>3</sub>	Saturated
Barium		Nickel		Stannic Chloride – SnCl <sub>4</sub>	Saturated
Chloride – BaCl <sub>2</sub>	Saturated	Chloride – NiCl <sub>2</sub>	Saturated	Stannous	
Boric Acid – H <sub>3</sub> BO <sub>3</sub>	Saturated	Nitrate – Ni(NO <sub>3</sub> ) <sub>2</sub>	Saturated	Chloride – SnCl <sub>2</sub>	Saturated
Cadmium fluoroborate – Cd(BF <sub>4</sub> ) <sub>2</sub>	Saturated	Sulphate – NiSO <sub>4</sub>	Saturated	Fluoroborate – Sn(BF <sub>4</sub> ) <sub>2</sub>	Saturated
Calcium		Nitric Acid – HNO <sub>3</sub>	60% at 25°C 20% at 60°C 10% at 100°C	Sulphate – SnSO <sub>4</sub>	Saturated
Chloride – CaCl <sub>2</sub>	Saturated	Phosphoric Ortho-Acid – H <sub>3</sub> PO <sub>4</sub>	85%	Sulphuric Acid – H <sub>2</sub> SO <sub>4</sub>	75%
Nitrate – Ca(NO <sub>3</sub> ) <sub>2</sub>	50%	Plating Solutions – Commercial		Zinc	
Chromic Acid – CrO <sub>3</sub> +H <sub>2</sub> O	* See Note	<i>Refer to you chemical supplier (NB Certain solutions eg electroless Ni and Cu will necessitate regular acid Stripping).</i>		Chloride – ZnCl <sub>2</sub>	Saturated
Copper		Potassium		Nitrate – Zn(NO <sub>3</sub> ) <sub>2</sub>	50%
Chloride – CuCl <sub>2</sub>	Saturated	Bromide – KBr	Saturated	Phosphate – Zn <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub>	Saturated ***
Cyanide – CuCN <sub>2</sub>	Saturated	Carbonate – K <sub>2</sub> CO <sub>3</sub>	50%	Sulphate – ZnSO <sub>4</sub>	Saturated
Fluoride – CuF <sub>2</sub>	Saturated	Chlorate – KClO <sub>3</sub>	Saturated		
Nitrate (Cu(NO <sub>3</sub> ) <sub>2</sub> )	Saturated	Chloride – KCl	Saturated		
Sulphate – CuSO <sub>4</sub>	Saturated	Cyanide – KCN	Saturated		
Deionised Water		Dichromate – K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>	40%		
Electroless Copper		Ferrocyanide – K <sub>4</sub> Fe(CN) <sub>6</sub>	Saturated		
Electroless Nickel		Hydroxide – KOH	50% to 50°C		
Ferric		Nitrate – KNO <sub>3</sub>	Saturated		
Chloride – FeCl <sub>3</sub>	Saturated	Permanganate – KMnO <sub>4</sub>	20% **		
Nitrate – Fe(NO <sub>3</sub> ) <sub>3</sub>	Saturated	Sulphate – K <sub>2</sub> SO <sub>4</sub>	Saturated		
Phosphate – FePO <sub>4</sub>	Saturated	Silver			
Sulphate – Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	Saturated	Cyanide – AgCN	Saturated		
Ferrous		Nitrate – AgNO <sub>3</sub>	Saturated		
Chloride – FeCl <sub>2</sub>	Saturated				
Phosphate – Fe <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub>	Saturated				
Sulphate – FeSO <sub>4</sub>	Saturated				
Fluoroboric Acid – HBF <sub>4</sub>	100%				
Fluorosilicic Acid – H <sub>2</sub> SiF <sub>6</sub>	50%				

\* Specify Popular CA

\*\* Specify Polaris PS

\*\*\* For zinc phosphate and other solutions which are likely to create salt deposits, please see maintenance instructions or contact the manufacturer

For use in Organic media solvents refer to manufacturer.