



## VCI ADDITIVES FOR FORMULATORS

# VCI-648

**U.S. Patent No. 4,926,449 & 4,968,478**

**Canada Patent No. 1,339,292**

**Europe Patent No. 03288762**

**Sweden Patent No. 89100523.3**

### PRODUCT DESCRIPTION

VCI-648 is a complete corrosion inhibitor liquid concentrate for multimetal corrosion protection. This product protects from corrosion in closed loop cooling systems without harming the environment like traditional chromate treatments.

VCI-648's chemistry provides safe protection even under radioactive conditions. It can be blended with glycol and/or polymers for scale suppression or to maintain a heat transfer efficiency.

### FEATURES

- Significantly reduces secondary radiation in cooling systems
- Contains no chromate
- Eliminates extra costs for chromate monitoring and handling
- Protects ferrous and non-ferrous metals from corrosion and pitting
- Simple and easy operator control by using a conventional test kit

### TYPICAL APPLICATIONS

Use VCI-648 in auxiliary or other closed loop cooling water systems in nuclear industries.

### DOSAGE

The standard recommendation is 35 - 40 gallons (133 - 152 liters) per 10,000 gallons (37,854 liters) circulating water (0.35 - 0.4% by volume).

### TYPICAL PROPERTIES

Appearance	Colorless, slightly yellow liquid
Solubility	Water soluble
pH	8 - 10 (1% aqueous)
Density	9.7 - 9.8 lb/gal 1.16 - 1.18 kg/l
Non-volatile Content	22 - 28%

### PACKAGING AND STORAGE

VCI-648 is packaged in 55 gallon (208 liter) metal drums, liquid totes or bulk. Product should be stored in a tightly closed container in heated warehouse to prevent freezing. Shelf life is 24 months.

Comparison of Acute Toxicity Data for Chromates, Sodium, Molybdate and  
New VCI-648 Potassium Molybdate Based Inhibitor

Species	Chromate (as CrO <sub>4</sub> ) ppm				Sodium Molybdate ppm				VCI-648 Potassium Molybdate based inhibitor ppm			
	TL50 (hours)				TL50 (hours)				TL50 (hours)			
	24	48	96	No Effect	24	48	96	No Effect	24	48	96	No Effect
Fathead Minnow	100	75	50	<50	>5000	5000	1000	500	>5000	>5000	1500	500
Treespine Stickleback	50	<50	<<50	<<50	3000	1500	1000	<500	3000	1500	1250	500

TL50 = LC50- Threshold limit at which a particular effect occurs in 50 percent of the population survived.

**FOR INDUSTRIAL USE ONLY**  
**KEEP OUT OF REACH OF CHILDREN**  
**KEEP CONTAINER TIGHTLY CLOSED**  
**NOT FOR INTERNAL CONSUMPTION**  
**CONSULT MATERIAL SAFETY DATA SHEET FOR MORE INFORMATION**

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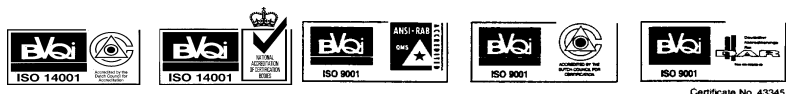
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Certificate No. 43345