

## CRYSTAL LOK™ Treatment Rejects Chemicals on Concrete (1, 2)

Crystal Lok™ waterproofs and treats to prevent chemical and liquid attack on and deterioration to concrete structures where Portland cement is the principal cementitious component of the concrete structure. Crystal Lok™ treated substrates resists attack by these compounds and aids protection of imbedded structural steel. The table below lists chemical compounds for which Crystal Lok™ can be used.

1. from “**Compilation Report on Cement and Concrete Application Testing 1995-1997**”: Barry E. Sheets, Michael R. Silsbee, Tanya Baker; Intercollege Materials Research Laboratory; The Pennsylvania State University,

and 2. “**Guide to the Use of Waterproofing, Dampproofing Protective and Decorative Barrier Systems for Concrete**” ACI 515.1R-79 American Concrete Institute, Detroit, 1979

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### ACIDS

acetic, < 10%  
acid waters with pH of 6.5 or less. (*Disintegration of concrete increases as pH decreases.*)  
boric  
carbolic  
carbonic  
chromic, 5 % - 50%. (*In porous concrete it attacks steel. Steel corrosion may cause concrete to spall.*)  
formic, 10% - 90%  
Humic (disintegrating plant waste, ie compost)  
hydrochloric - 10% - 37%. (*Causes rapid disintegration, including steel.*)  
phosphoric, 10% - 85%  
tannic

### SALTS & ALKALIS

bromide, sodium  
dichromate sodium  
potassium  
nitrates of lead, magnesium, potassium, sodium, & ammonium  
nitrite of sodium  
Persulfate potassium  
•sulfite of sodium  
thiosulfate of sodium

### PETROLEUM OILS

gasoline, kerosene, light oil above 35° Baume, ligroin, lubricating oil, machine oil, mineral spirits  
benzol (benzene), cumol (cumene),  
toluol (toluene), xyol (xylene)  
creosote, cresol, dinitrophenol,  
phenol 5% - 25%

### SOLVENTS AND ALCOHOLS

carbon tetrachloride  
ethyl alcohol

Ethel ether, methyl alcohol  
t-butyl alcohol  
trichloro-ethylene  
acetone  
carbon disulfide  
glycerin (glycero)  
ethylene glycol. (*Used as deicer for airplanes. Spillage on concrete may cause surface scaling.*)

### FATS AND FATTY ACIDS

fish oil  
neatsfoot oil, tallow and tallow oil  
beef fat, lamb fat  
lard, lard oil

### VEGETABLE OILS

turpentine  
almond, china wood, linseed, olive, peanut, poppy seed, soybean, tung, walnut  
margarine  
castor, cocoa bean, cocoa butter, coconut, cottonseed, mustard, rapeseed

### MISCELLANEOUS

ashes - (*Sulfides and sulfates leach out and attack concrete.*)  
bleaching solutions  
brine-see specific chemicals above  
buttermilk - lactic acid  
carbon dioxide- (*May cause permanent shrinkage of concrete, or carbonation. Steel imbedded in carbonated concrete is prone to corrosion.*)  
chlorine gas  
cider  
coal  
coke  
corn syrup - glucose  
fermenting fruits, grains, vegetables, or extracts  
formaldehyde - 37% (formalin)  
fruit juices - (*Sugars and hydrofluoric and other acids cause disintegration on concrete.*)  
hydrogen sulfide  
iodine  
lead refining solution  
lignite oils  
manure  
mine waste water . (*Acids present disintegrate concrete and attack steel.*)  
molasses  
nickel plating solutions  
ores - (*Sulfides leaching may oxidize to sulfuric acid or ferrous sulfate. Treatment stops leaching.* )  
sauerkraut  
seawater - (*Disintegrates concrete with inadequate sulfate resistance and steel is attacked in porous or cracked concrete.*)  
sugar (sucrose)  
sulfur dioxide  
tanning bark  
tanning liquor  
water, soft (75 ppm of carbonate hardness)  
wine

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