

Captor[®]

Properties, Application & Handling

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Applications

Captor, a relatively new product, is now available to the potable water and wastewater treatment industries. It is used effectively to reduce residual

- **Chlorine**
- **Ozone**
- **Peroxide**

Properties

- **Captor** is an aqueous solution of *calcium thiosulfate*
- **Captor** is a nearly odorless, colorless, non-hazardous, non-toxic solution with a concentration of 30% (w/v) and a typical pH of 7.5
- **Captor** is certified in accordance with ANSI NSF Standard 60 for drinking water treatment

Product Advantages

Captor offers several advantages over the use of alternative chemicals, including:

- A safe, non-hazardous solution
- If spilled, it is not a reportable chemical
- No potential SO₂ exposure
- Nearly odorless
- Water clear
- Sodium free
- pH neutral
- Maintains a low freezing point
- Carrier water not required

Application Guidelines

To maximize your prospects for success and to achieve a low, cost-effective treatment, please follow these guidelines:

- **Set-up:** A simple feed pump and chlorine monitoring system is required for de-chlorination with Captor. Where sodium bisulfite is in use, thoroughly flush the system for about 20 minutes prior to the introduction of Captor to prevent chemical reaction.
- **Chemical Mixing:** Good mixing is important as it can significantly reduce the amount of Captor required.

Application Guidelines

- **Dosage Ratio and Contact Time for de-chlorination:**
Municipalities generally use a multiplier of about 1.48 parts of Captor per part of chlorine. While Captor reduces chlorine instantaneously, it may still require a few minutes to bring lingering chlorine to zero residual.

Dosage Rates for Dechlorination

Gallons of Captor per million gallons of water

	Parts per Million Chlorine									
	1	2	3	4	5	6	7	8	9	10
pH										
6.5	5.4	10.9	16.3	21.7	27.1	32.5	37.9	43.4	48.8	54.2
6.8	5.3	10.5	15.8	21.0	26.3	31.5	36.8	42.0	47.1	52.5
7.0	5.1	10.3	15.4	20.6	25.7	30.8	36.0	41.1	46.2	51.4
7.2	5.0	10.0	15.1	20.1	25.1	30.1	35.2	40.2	45.2	50.2
7.4	4.9	9.8	14.7	19.6	24.5	29.4	34.3	39.2	44.2	49.1
7.6	4.8	9.6	14.4	19.2	24.0	28.7	33.5	38.3	43.1	47.9
7.8	4.7	9.3	14.0	18.7	23.4	28.0	32.7	37.4	42.1	46.7
8.0	4.6	9.1	13.7	18.2	22.8	27.3	31.9	36.5	41.0	45.6
8.5	4.3	8.4	12.8	17.1	21.3	25.6	29.9	34.1	38.4	42.7
9.0	4.0	8.0	11.9	15.9	19.9	23.9	27.8	31.8	35.8	39.8
9.5	3.7	7.4	11.1	14.8	18.4	22.1	25.8	29.5	33.2	36.9
10.0	3.4	6.8	10.2	13.6	17.0	20.4	23.8	27.2	30.6	34.0

Dosage Rates for Ozone Quenching

Gallons of Captor per million gallons of water
(or Liters of Captor per 1000 cubic meters of water at 15°C)

	Parts per Million Ozone									
Ratio of Captor to Ozone	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
1.00:1	0.33	0.66	1.00	1.30	1.70	2.00	2.30	2.60	3.00	3.30
1.25:1	0.40	0.80	1.20	1.60	2.00	2.40	2.80	3.20	3.60	4.00
1.50:1	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00

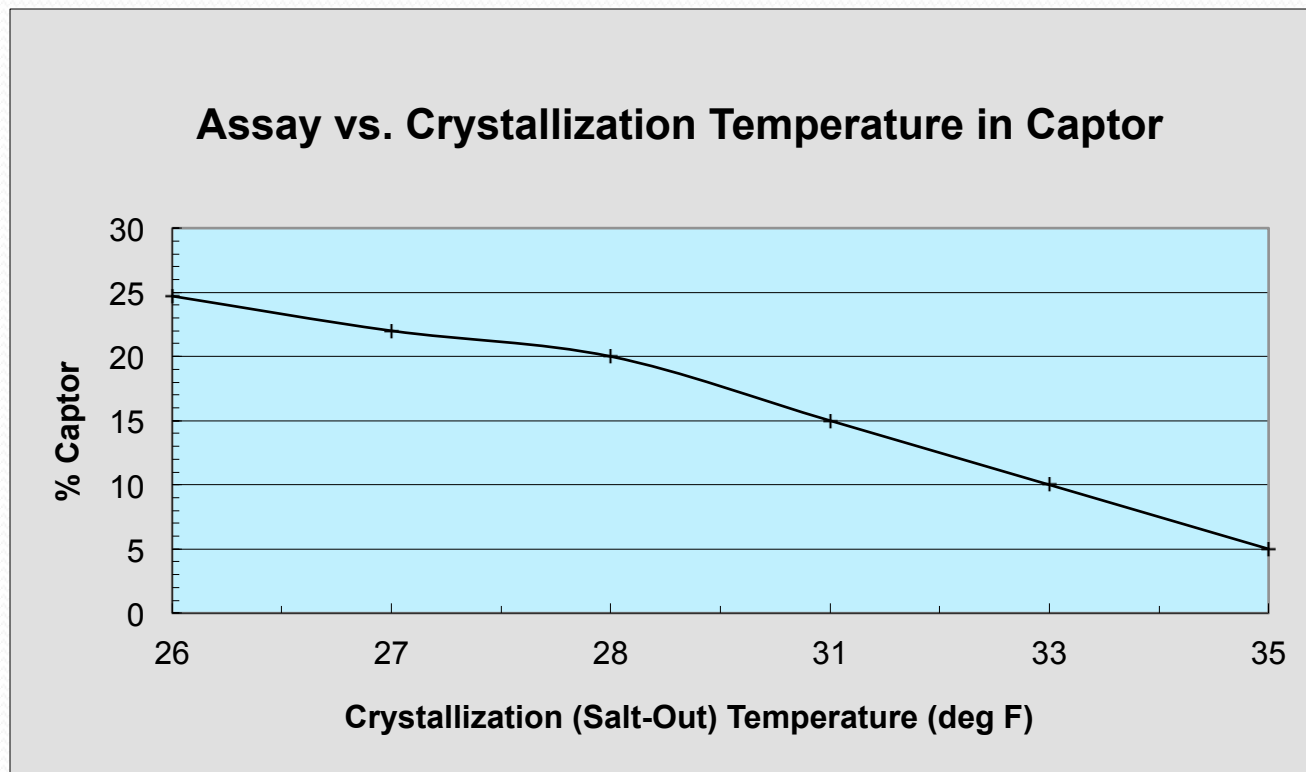
**Note: Below 5°C increase dosage by 5%.*

Storage Tank Maintenance

Periodic maintenance of your Captor storage tank is necessary to maintain product quality.

- We recommend flushing and disinfecting supply lines and day tanks thoroughly with super-chlorinated water every six months or at least once per year.

Crystallization Points



Material Compatibility

Materials acceptable for use with Captor:

<u>Metals:</u>	<u>Plastics:</u>	<u>Gaskets, O-rings and Seals:</u>
- Stainless Steel T304 & T316 series	- Polypropylene	- Viton
- Cast Iron	- Polyethylene	- EPDM
- Mild Steel	- PVC	- Teflon
- Aluminum 7075, 5254 & 1060	- CPVC	- Neoprene

Components of a complete system:

<u>Storage:*</u>	<u>Tank Material:</u>	<u>Valves:</u>
- Upright Tank	- Cross-linked polyethylene	- Viton
- Cone Bottom Tank	- Stainless Steel T304 & T316 series	- EPDM
- IMFO Tank	- Mild Steel	- Teflon
	- Aluminum 7075, 5254 and 1060	- Neoprene

<u>Hoses:</u>	<u>Pipe and Hose Fittings:</u>
- PVC	- Polypropylene
- Neoprene	- Iron
- Polyethylene	- PVC
- Teflon Liner	

**Locate drain fitting in a sump or lower end of a horizontal tank and the bottom of a polysphere tank to aid complete drainage.*

Releases

Calcium thiosulfate is considered non-hazardous with NFPA ratings of 0–0–0 for health, flammability, and reactivity.

- The vapor space over the solution is largely water (no off-gassing) and bulk storage is generally permitted without secondary containment.
- The product is not subject to SARA Title III reporting requirements.
- Accidental release into the environment is not listed as a waste nor does it exhibit any waste characteristic to cause it to be classified as a hazardous waste in accordance with 40 CFR 261.

Disposal Considerations

- **Small Spills/Leaks:** Absorb with earth, sand, clay, fly ash or other inert commercial sorbents. Dispose of absorbed material as non-hazardous waste in a chemical waste landfill.
- **Large Spills/Leaks:** Confine the spill to qualified personnel. Wear proper protective equipment. Shut off release if safe to do so. Contain the release to as small an area as possible by diking with earth, sand or other available materials. Recover as much of the solution as possible. Handle the remaining material in the same manner as a small release (above).