

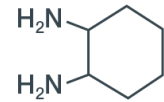
Corrosion Inhibition



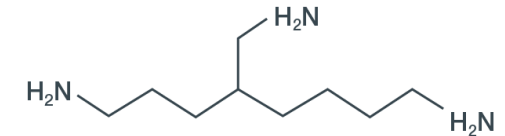
Our specialty amines FlexaTram™- BHM, FlexaTram™- DAM & Hexatran™ can be used in Vapor Corrosion Inhibitors (VCIs) or reacted with fatty acids to create a Film-Forming Corrosion Inhibitor (FFCIs). These inhibitors prevent corrosion from chloride, carbon dioxide & hydrogen sulfide.

Our Chemistries

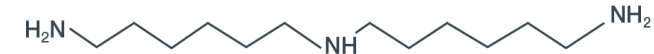
FLEXATRAM-DAM
1,2-Diaminocyclohexane



HEXATRAN
Triaminononane



FLEXATRAM-BHM
Bis(hexamethylene) Triamine



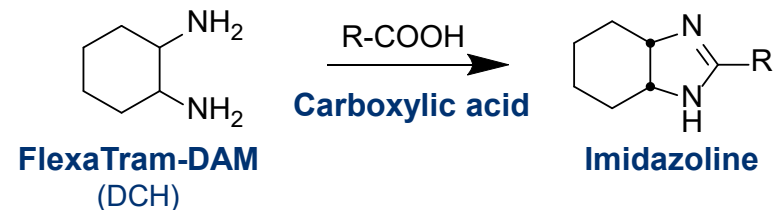
FlexaTram™ and Hexatran™ derivatives

		Metals	Typical Dosage (ppm)
Oilfield brines	Quaternaries (VCIs)	Fe	10-25
	Amides imidazolines (FFCIs)	Fe	10-25
Boilers, crackers & refineries	Phosphonates (VCI's)	Fe, Zn, Cu	10-25
	Amides imidazolines (FFCIs)	Fe	10-100
	Nitrates and carbonates (VCIs)	Fe	10-100
	FlexaTram™ DAM & imidazolines (VCIs)	Fe	10-100

FlexaTram™ DAM

Diaminocyclohexane (DCH) & Hexamethylenediamine (HDA)

Grade	Assay (HMD%)	Assay (DCH)	Water (wt%)
FlexaTram™ DAM-100	∞15	∞25	∞40
FlexaTram™ DAM-120	∞40	∞32	<10
FlexaTram™ DAM-700	∞70	∞17	<10
FlexaTram™ DAM-800	>95	<5	<5
FlexaTram™ DAM-950	<5	>95	<.5
FlexaTram™ DAM-990	<5	>99	<.5



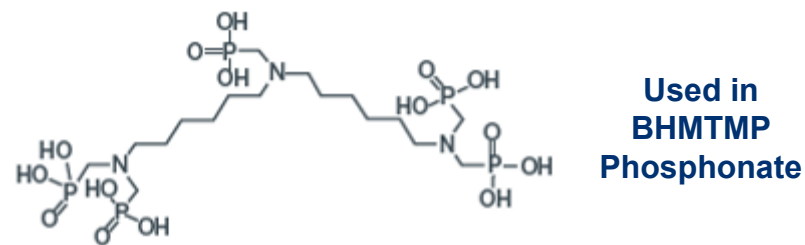
Usable in both water and oil-based formulation

- Dispersible in light brines and fresh water
- Commonly used in oil soluble filming inhibitors
- Formulates well with nonionic surfactants & alcohols

FlexaTram™ BHM

Bis(hexamethylene)triamine

Grade	Assay (BHM%)	Nickel (ppm)	Water (wt%)
FlexaTram™ BHM-120	+45	<1500	<5
FlexaTram™ BHM-123	+45	<1500	<3
FlexaTram™ BHM-121	+45	<1500	<1
FlexaTram™ BHM-150	+45	<600	<5
FlexaTram™ BHM-151	+45	<600	<1



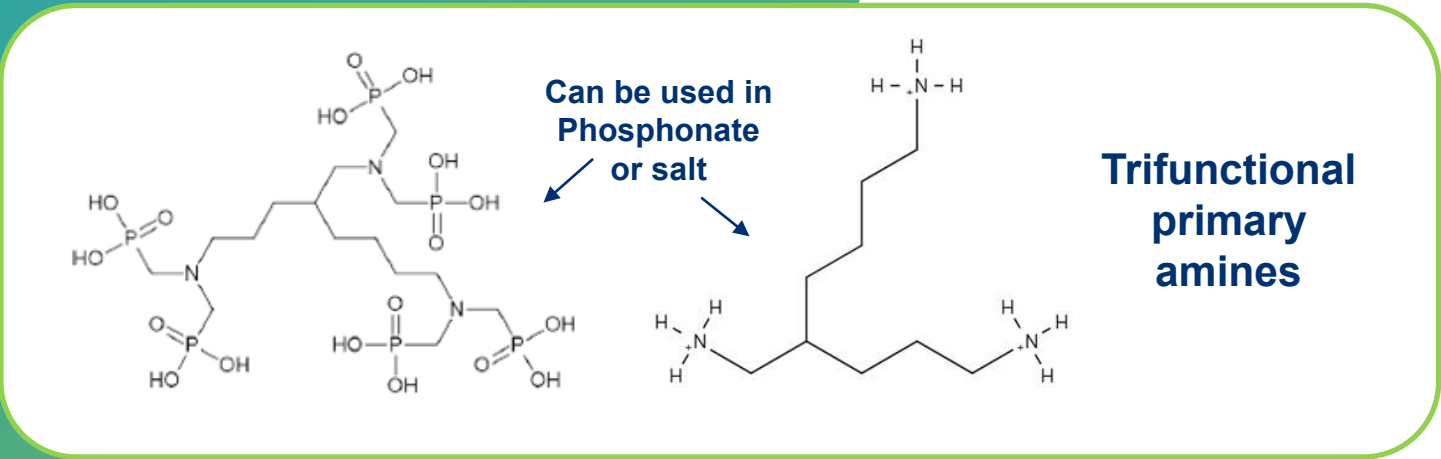
Can be formulated with cationic amines for combination scale/ corrosion prevention

- Effective in temperatures up to 120°C
- Commonly used in water treatment systems
 - High calcium ion tolerance

Hexatran™

Triaminononane (TAN)

Grade	Assay (TAN%)	Water (wt%)
Hexatran™ 200	>80	<3.5
Hexatran™ 300	>50	<5
Hexatran™ 100	>95	<.5
Hexatran™ 110	>99	<.5



Formalin

Formaldehyde & H₂O

Grade	Assay (Formaldehyde wt%)	MeOH (wt%)	Formic Acid (wt%)
Formalin 501	49-51	1.5 Max	.1 Max
Formalin 371	35.5-37.5	1.5 Max	
Formalin 377	37.0 +/- 2	7.0 +/- 0.5	



Made in Houston, Texas

- Inhibited and uninhibited grade