

Ivanhoe Industries Inc.

Serving the MWF Industry

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Ivanhoe Industries inc.

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Ivanhoe Industries Inc.

- Founded 1983 by John Hoegl
- Based in Tullytown PA (Bristol)
- Change of Control in 2005
- Stocking Distributor
- Local Warehousing

Products for Metalworking Fluids

■ Corrosion Inhibitors

- IvanGuard® Triazoles (Yellow Metals)
- Diacid Corrosion Inhibitors (Ferrous Metals)
- Monoacid Corrosion Inhibitor (2-EHA)

■ Polymer Additives

- Anti-Mist Agents
- Way-Oil Packages
- Other Chemistries

■ Defoamers

- QuickBreak Products (DS Additives)

IvanGuard® Triazoles

Triazoles are the workhorse corrosion inhibitors for non-ferrous metals including copper and its alloys and aluminum.

■ Products Offered

- IvanGuard® T: Tolyltriazole - Granular & Powder
- IvanGuard® T-50: 50% Aqueous NaTTZ
- IvanGuard® B: Benzotriazole - Fine Granular, Columns and Needles

Ferrous Metals

Amine carboxylates have been used for many years to prevent corrosion of ferrous metals. The monoacid (2-ethyl)hexanoic acid is a low-cost acid in widespread use.

Diacids are also commonly used. Ivanhoe offers both sebacic acid (C_{10}) and two formulated C_9 - C_{12} blends from Emery Oleochemicals, Emerox® 1175 and Emerox® 1185.

Diacids Studied - ASTM D4627

Diacid (Wt%)	Emerox® 1112	Emerox® 1175	Emerox® 1185	Sebacic Acid	Corfree® M1
>C ₉	3	2	1		
C ₉	85	70	45		<10 (C ₄ -C ₉)
C ₁₀		5-10	5-10	>98	5-10
C ₁₁		15	40+		30-45
C ₁₂		4	3		30-45
Others	13 (>C ₉)	30 (Total >C ₉)	50 (Total >C ₉)		<6

Emerox® 1112, Emery Oleochemicals

Emerox ®1175, Emery Oleochemicals

Emerox ®1185, Emery Oleochemicals

Sebacic Acid, Ivanhoe industries Inc.

Corfree® M1, Invista Specialty Intermediates

Summary of Results

Diacid (Wt%)	Emerox® 1112	Emerox® 1175	Emerox® 1185	Sebacic Acid	Corfree® M1
0.05 (A)	Rust	Rust	Rust	Rust	Rust
0.1 (B)	Rust	Rust	Rust	Rust	Rust
0.2 (C)	Rust	Rust	Pass	Rust	Pass
0.3 (D)	Rust	Pass	Pass	Pass	Pass
0.5 (E)	Pass	Pass	Pass	Pass	Pass
0.7 (F)	Pass	Pass	Pass	Pass	Pass
1.0 (G)	Pass	Pass	Pass	Pass	Pass
1.5 (H)	Pass	Pass	Pass	Pass	Pass
2.0 (I)	Pass	Pass	Pass	Pass	Pass

Polymer Additives

Ivanhoe offers a variety of polymer additives from Functional Products (Macedonia OH). The line includes tackifiers, viscosity modifiers and specialty additive packages for hydraulic fluids, gear oils and greases. A number are formulated for use in biobased and food-grade lubricants.

Several of these products find use in metalworking fluids.

Polymer Additives for MWF

■ Anti-Mist Agents

- V-162/ V-176/V-188/V-189A : Anti-mist agents for oil-based MW
- MW-612: Anti-mist agent for semi-synthetic and full synthetic fluids
- V-801: Aqueous oil-free polymer emulsion additive

Polymer Additives for MWF

■ Tackifiers

- V-176: High-tack, shear-stable PIB in paraffinic oil
- V-178: Concentrated PIB in paraffinic oil

■ Emulsifiers

- EVO-530: Emulsifier package for biobased fluids.

■ Viscosity Modifiers

- V-160: Low MW shear-stable PIB in paraffinic oil

Way Oil Additive Packages

- **WA-24:** For use in Group I basestocks. Excellent demusibility. Cincinnati Milacron test approval.
- **WA-68:** For use in Group II and Group II+ oils. Light color and low odor. Passes Cincinnati Milacron and LS-2 tests.

Other Polymeric Additives

■ Food Grade Products

- Tackifiers
- Viscosity Modifiers
- Coupling Agents
- Anti-Wear/Corrosion Inhibitors

Other Polymeric Additives

- Biobased Additives
 - Tackifiers
 - Viscosity Modifiers
 - Cold-Flow Improvers
 - Anti-Oxidants
 - Gear Oil Packages
 - Hydraulic Fluid Packages

Defoamers

Ivanhoe has partnered with DS Additives to introduce the Quick Break line of silicone and non-silicone defoamers to the lubricants industry.

Quick Break Application Guide

Fluid Type	Quick Break 1100	Quick Break 1110	Quick Break 1120	Quick Break 1150	Quick Break 1155	Quick Break 2010	Quick Break 2015
HS Soluble Oil	2	2	2	1	1	3	3
Soluble Oil	3	3	3	2	2	3	3
High-Oil Semi-Synthetic	2	2	3	1	1	3	3
Semi-Synthetic	3	3	3	2	2	3	3
HPME	2	3	3	1	1	3	3
Synthetic	2	2	2	1	1	3	3
Solution Synthetic	2	3	2	2	2	2	3
Cleaners	3	3	1	2	2	0	0
Key	3=Best	2=Good	1=Fair	0=Poor			

DS Additives

- Technical Services Offered
 - Consultation
 - Product Testing
 - Formulation Optimization
 - Custom Product Development