CALUMET



CRITICAL MINERALS & METAL EXTRACTION

CALUMET MINING OVERVIEW

Calumet delivers high-performance solvents and base oils for a wide range of mining applications, from ore extraction and solvent extraction to flotation and material handling. Our highly refined products provide exceptional consistency, process reliability, and environmental stewardship, helping operators improve efficiency, optimize recovery, and maintain tighter control over critical mining processes.

▶ MINING SOLUTIONS

- **Gold Recovery Solutions:** Preg-Robbing Mitigation and Carbon Blinding
- **Copper Solvent Extraction:** SX-EW Diluents for Copper Recovery
- **Critical Minerals and Metal Extraction:** Extraction Diluents for Precious and Base Metals
- **Flotation Process Solutions:** Diesel Alternatives
- **Ore Handling and Dust Control:** Railcar Dust Suppression and Product Preservation

▶ ABOUT CALUMET

Calumet manufactures, formulates, and markets a diversified slate of specialty branded products and renewable fuels. Founded in 1919, Calumet proudly produces more than 1,900 unique specialty products including: base oils, solvents, waxes, high-purity specialty oils, asphalts, fuels, and esters used in the development of the world's most trusted brands and products. Calumet is vertically integrated and holds a comprehensive portfolio of branded products for use in commercial, industrial and consumer applications.

Headquartered in Indianapolis, Indiana, more than 1,500 team members operate at 12 specialty product manufacturing and production facilities across North America. Calumet products are available in more than 80 countries across the world, serving 2,400+ customers globally.

CALUMET

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CALUMET

SOLVENT EXTRACTION DILUENTS FOR PRECIOUS, BASE, AND STRATEGIC METALS

Calumet specialty solvent extraction diluents are engineered to support the efficient recovery of valuable metals from leach solutions across a broad range of mining and hydrometallurgical operations. Designed for use with a variety of extractant and chelating systems, our high-purity hydrocarbon solvents help maximize metal selectivity, optimize extraction efficiency, and improve overall process performance.

By matching solvent characteristics to the specific extractant chemistry, Calumet enables enhanced metal transfer, faster phase disengagement, and more consistent operation throughout the solvent extraction circuit. Our highly refined products are manufactured to stringent quality specifications, providing reliable performance while supporting environmental and operational goals.

In addition to supporting the recovery of copper, cobalt, nickel, and rare earth elements, Calumet products are used in uranium extraction and processing operations. Our specialty hydrocarbon fluids are formulated to provide the consistency, purity, and performance required for efficient solvent extraction circuits and reliable production of uranium concentrates.

CALUMET SOLVENTS TYPICAL PROPERTIES

PROPERTIES	METHOD	CALXTRA 400-500 <1%	CALXTRA 170	CALXTRA 170ES
Viscosity @ 40 °C (cSt)	ASTM D445	1.87	2.08	2.15
Specific Gravity @ 60/60 °F	ASTM D1250	0.7980	0.8132	0.8245
Density @ 60 °F (Pounds Per Gallon)	ASTM D1250	6.654	6.77	6.865
Flash Point (°F)	ASTM D93	202	178	183
Pour Point (°F)	ASTM D97	-38	<-80	-50
Aniline Point (°F)	ASTM D611	170.7	165.2	157.6
Aromatics (Vol. %)	ASTM D1319	<1.0	<0.5	5
Vapor Pressure @ 20 °C (mm Hg)	ASTM D2879	0.11	-	-
Distillation IBP (°F)	ASTM D86	432	400	406
Distillation EP (°F)	ASTM D86	473	508	512
BTEX (Detection Limits per EPA Drinking Water MCLs)	EPA 8260B	ND	ND	
Transportation: Not Regulated		✓	✓	✓
APPLICATIONS				
Gold Recovery Solutions				
Copper Solvent Extraction		✓		✓
Critical Minerals & Metal Extraction		✓	✓	✓
Flotation Process Solutions		✓	✓	
Ore Handling & Dust Control				

KEY BENEFITS

- **Enhanced Extraction Efficiency:** Optimized solvency characteristics support effective metal transfer and recovery.
- **Improved Phase Separation:** Fast, clean disengagement between organic and aqueous phases helps increase throughput and reduce solvent losses.
- **Consistent Product Quality:** Manufactured to tight specifications for predictable performance and process control.
- **Broad Metal Compatibility:** Suitable for use in the extraction of a wide range of precious, base, and strategic metals.
- **Environmentally Responsible Formulations:** Highly refined products designed to support safe and sustainable mining operations.

PRODUCT RECOMMENDATION

- CALXTRA™ 170
- CALXTRA™ 170ES
- CALXTRA™ 400-500 <1% Solvent

CALXTRA 170ES is a premium solvent extraction diluent developed specifically for metal recovery operations. Manufactured from petroleum distillates and synthetic hydrocarbons, it is formulated to exacting quality standards that promote consistent performance, optimized phase disengagement, and operational reliability.

CALXTRA 170ES is suitable for solvent extraction processes involving a variety of metals, including copper, cobalt, nickel, platinum, palladium, uranium, vanadium, beryllium, and rare earth elements, making it a versatile solution for both traditional and emerging mining applications.

TECHNICAL ASSISTANCE

For product or technical questions, contact your Sales Representative or Calumet Product Support at 800.437.3188 or email technical@calumet.com.

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