

COPPER SOLVENT 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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COPPER SOLVENT EXTRACTION

HIGH-PERFORMANCE DILUENTS FOR COPPER RECOVERY

Calumet solvent extraction products are specifically engineered to support the demanding requirements of copper solvent extraction (SX-EW) operations. Formulated for compatibility with conventional copper extractants and stable across a wide operating pH range, our high-purity hydrocarbon diluents deliver reliable performance throughout the extraction process.

By tailoring solvent properties to the specific metal and extractant chemistry, Calumet helps operators optimize extraction efficiency, improve phase separation, and maintain consistent process performance. Our highly refined diluents provide the solvency characteristics required for effective metal transfer while supporting safe, efficient, and environmentally responsible operations.

KEY BENEFITS

- **Enhanced Phase Separation:** Separates cleanly from aqueous solutions, helping improve solvent recovery and reduce processing time.
- **Optimized Solvency Performance:** Excellent compatibility with industry-standard extractants for efficient copper recovery.
- **Improved Safety and Operator Comfort:** High flash points and low odor profiles support safer plant operations and a better working environment.
- **Consistent Extraction Performance:** Narrow distillation ranges help minimize evaporative losses and deliver predictable operating results batch after batch.
- **Reliable Product Quality:** Highly refined formulations ensure consistency, process control, and dependable performance in critical extraction circuits.

CALUMET SOLVENTS TYPICAL PROPERTIES

PROPERTIES	METHOD	CALXTRA 400-500 <1%	CALXTRA 170ES	CALXTRA 170	CALXTRA 260
Viscosity @ 40 °C (cSt)	ASTM D445	1.87	2.15	2.08	3.74
Specific Gravity @ 60/60 °F	ASTM D1250	0.7980	0.8245	0.8132	0.8237
Density @ 60 °F (Pounds Per Gallon)	ASTM D1250	6.654	6.865	6.77	6.873
Flash Point (°F)	ASTM D93	202	183	178	285
Pour Point (°F)	ASTM D97	-38	-50	<-80	-30
Aniline Point (°F)	ASTM D611	170.7	157.6	165.2	191.0
Aromatics (Vol. %)	ASTM D1319	<1.0	5	<0.5	0.3
Vapor Pressure @ 20 °C (mm Hg)	ASTM D2879	0.11	-	-	0.01
Distillation IBP (°F)	ASTM D86	432	406	400	519
Distillation EP (°F)	ASTM D86	473	512	508	596
BTEX (Detection Limits per EPA Drinking Water MCLs)	EPA 8260B	ND		ND	ND
Transportation: Not Regulated		✓	✓	✓	✓
APPLICATIONS					
Gold Recovery Solutions					
Copper Solvent Extraction		✓	✓		✓
Critical Minerals & Metal Extraction		✓	✓	✓	
Flotation Process Solutions		✓		✓	
Ore Handling & Dust Control					

PRODUCT RECOMMENDATION

- CALXTRA™ 400-500 <1% Solvent
- CALXTRA™ 170ES
- CALXTRA™ 170
- CALXTRA™ 260

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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