

ACORGA[®] OPT Series Solvent Extraction Reagents

ACORGA OPT solvent extraction reagents are proprietary formulations specifically designed to increase Cu transfer as compared to unmodified aldoxime:ketoimine systems. ACORGA OPT reagents provide higher metal transfer in the strip stage by improving the performance of the available oximes under typical strip conditions, without negatively affecting the extract stage. Overall metal transfer efficiencies can be expected to improve significantly with use of these products.

Key Benefits:

- By properly modifying an aldoxime:ketoimine formulation, copper transfer capacity is increased significantly and the reagent becomes much more versatile in coping with leach and electrolyte solutions
- The formulations are more robust for changing circuit conditions
- Selectivity can be better than that of un-modified reagents
- Reagent stability can be better than that of un-modified reagents
- Plant tests can be completed easily to calculate potential cost savings/production increase that could be expected

Field Results

Case 1	Formulation	Recovery	
Conditions: - PLS: 7 g/l Cu; pH 1.5 - LE 30 g/l Cu; 180 g/l acid - Series configuration (2E+1S) - 95% stage efficiency - 1:1 extract O/A ratio - Advancing to 45 gpl in strip - 30 weight % reagent in diluent	2.3:1 aldoxime:ketoimine (competing product)	86.3%	
	2.3:1 aldoxime:ketoimine + Cytec's proprietary ester modifier (ACORGA OPT 5520 solvent extraction reagent)	87.6%	
	4.4:1 aldoxime:ketoimine + Cytec's proprietary ester modifier (ACORGA OPT 5530 solvent extraction reagent)	89.2%	
Case 2	Formulation	Series Recovery	Parallel Recovery
Conditions: - PLS: 3 g/l Cu; pH 1.5; Fe (III) 2.7 g/l - LE 30 g/l Cu; 180 g/l acid - Parallel series configuration (1E+2E+1S) - 95% stage efficiency - 1:1 extract O/A ratio - Advancing to 45 gpl in strip - 20 weight % reagent in diluent	1:1 aldoxime:ketoimine (competing product)	83.72%	81.23%
	1:1 aldoxime:ketoimine + Cytec's proprietary ester modifier (ACORGA OPT 5510 solvent extraction reagent)	90.08%	85.23%

Physical Data		ACORGA OPT 5510	ACORGA OPT 5520	ACORGA OPT 5530
Appearance		Clear amber-colored liquid, free from visible impurities.	Clear amber-colored liquid, free from visible impurities.	Clear amber-colored liquid, free from visible impurities.
Specific gravity, 25°C		0.93-0.96	0.94-0.97	0.95-0.98
Viscosity, cP at 25°C		Not more than 200	Not more than 200	Not more than 200
Flash point, °C		Typically >90 (PMCC)	Typically >90 (PMCC)	Typically >90 (PMCC)
Performance Data				
Copper uptake, g/l per v/o		0.53-0.56	0.54-0.57	0.55-0.58
Extract kinetics, approach to equilibrium at 25°C	15 sec.	Not less than 85%	Not less than 85%	Not less than 85%
	30 sec.	Not less than 95%	Not less than 95%	Not less than 95%
Strip kinetics, approach to equilibrium at 25°C	30 sec.	Not less than 95%	Not less than 95%	Not less than 95%
Copper extraction isotherm point at 25°C	Organic	Not less than 3.9 g/l	Not less than 4.1 g/l	Not less than 4.2 g/l
	Aqueous	Not greater than 2.1 g/l	Not greater than 2.0 g/l	Not greater than 1.9 g/l
Copper strip isotherm point at 25°C	Organic	Not greater than 1.4 g/l	Not greater than 1.7 g/l	Not greater than 2.0 g/l
	Aqueous	Not less than 33.0 g/l	Not less than 33.0 g/l	Not less than 33.0 g/l
Copper/Iron selectivity		Not less than 2000 g/l	Not less than 2000 g/l	Not less than 2000 g/l
Phase disengagement	Extract	Not more than 60 sec.	Not more than 60 sec.	Not more than 60 sec.
	Strip	Not more than 80 sec.	Not more than 80 sec.	Not more than 80 sec.
Complex solubility at 0°C, at 24 hours		No precipitation	No precipitation	No precipitation

Handling

Before handling this material, read the appropriate Cytec Material Safety Data Sheet for more detailed information on physical properties and safety, health and environmental data.

Shipping

ACORGA OPT series extractants are shipped in drums, totes or bulk containers. For information on bulk delivery, contact your Cytec sales representative or local sales office.

Technical Service

Contact your nearest Cytec sales office for assistance in choosing the optimum metal extraction reagent for your particular circuit conditions. Once the optimum reagent has been selected, Cytec sales personnel are available to assist your operation in achieving the highest reagent performance.

In addition to the wide range of metal extraction reagents, Cytec offers a complete line of products for use in metallurgical applications: thickener and washer flocculants, defoamers, iron removal agents, filtering aids, collectors, depressants, deposit control agents, cathode smoothing agents, bauxite handling aids, hydrate flocculants, and humate removal agents.

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