

Florrea MINING CHEMICALS BETTER Flotation Performance



MINING REAGENTS

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BEST VALUE ADDED FLOTATION REAGENTS

ISO9001:2008 Certified
World Leading Manufacturer
of Flotation Reagents



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BEST VALUE ADDED FLOTATION REAGENTS

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Shenyang Florrea Chemicals Co., Ltd

Florrea Mining Chemicals—Flotation Reagents[I]

Florrea Mining Chemicals—Flotation Reagents[II]

Reagent	Type	Trade Name	Components	Application	To be combined with					
Collector	xanthate	Florrea SEX	Sodium ethyl xanthate	Water soluble salts and Non-selective collectors for flotation of sulphide and sulphidized oxide ores. The activity of the xanthates increases with increasing chain length of the alkyl group R; the selectivity decreases in accordance with increased chain length. Xanthates are often used in combination with other reagents such as dithiophosphates or thionocarbamates, often added to the scavenger circuit to improve the total recovery. Xanthates undergo hydrolysis in the acid pH range, and are preferred for flotation in alkaline pulp streams. Powder and Pellet form are available with Purity of 85% and 90% Min	Florrea 1000 series collector Florrea 2000 series collector Florrea 2200 series collector Florrea 2250 series collector Florrea 2300 series collector Florrea 2500 series collector Florrea 2700 series collector Florrea 3000 series collector Florrea 4000 series collector Florrea 7500 series collector Florrea 8000 series collector Florrea 8800 series collector Florrea 9000 series collector					
		Florrea PEX	Potassium ethyl xanthate							
		Florrea SIPX	Sodium Isopropyl xanthate							
		Florrea PIPX	Potassium Isopropyl xanthate							
		Florrea SIBX	Sodium Isobutyl xanthate							
		Florrea PIBX	Potassium Isobutyl Xanthate							
		Florrea PBX	Potassium Butyl Xanthate							
		Florrea SBX	Sodium Butyl xanthate							
		Florrea SAX	Sodium Amyl Xanthate							
		Florrea PAX	Potassium Amyl Xanthate							
		Florrea PHX	Potassium Hexyl xanthate							
		Florrea POX	Potassium Octyl xanthate							
		Florrea PMX	Potassium MIBC Xanthate							
		Collector	Dithiophosphate Florrea 2200 series collector			Florrea 2210	Mixture of dithiophosphate and others. Florrea 2200 collectors are, like xanthate, generally used in the flotation of sulphide ores or sulphidized oxide minerals. As with xanthate, increasing chain length will increase the activity of whilst decreasing selectivity. In combination with xanthate, Florrea 2200 series collector can provide remarkable advantage in grade and recovery of the concentrates. pH:4-12 and more effective in alkaline floatation circuit. More selective than xanthates.	Selective collector for Copper and Zinc Selective collector for Copper from Cu/Zn, for activated Zinc sulfides. Very selective against iron sulfides strong, & selective collector for Cu, Ni, precious metals and activated Zn minerals. collector for Cu and activated Zn minerals especially for coarse middlings. strong collector for Cu and gold while selective against iron sulfides frothing collector for Copper, lead, gold, silver, PGM, nickel, antimony and activated Zinc sulfides, selective against pyrite and Pyrrhotite collector for Lead, copper, gold & silver. Selective against sphalerite and iron sulfides. Good for Lead/Zinc separation excellent collector for Copper, gold and silver. Good for Copper/Zinc separation and Copper/Lead separation collector for copper and gold sulfides	Florrea Xanthate Florrea other collectors Florrea Frothers Florrea500 Florrea510 Florrea515 Florrea520 Florrea522 Florrea525 Florrea530 Florrea535 Florrea540 Florrea545 Florrea550 Florrea560 Florrea565 Florrea570 Florrea577 Florrea580 Florrea590 Depressants Florrea D100 series Activators Florrea A600 series Flocculants Florrea FC300 series	
Florrea 2211										
Florrea 2212										
Florrea 2213										
Florrea 2214										
Florrea 2215										
Florrea 2216										
Florrea 2220										
Florrea 2221										
Florrea 2218										
Florrea 2228										
Collector	Dithiophosphate Florrea 2500 Series Collector			Florrea 2519	Mixture of dithiophosphate	collector for Ag, Pb, Cu and activated Zn sulfides, good for bulk selective flotation of Pb/ Zn with frothing characteristics flotation collector for Pb from Pb/Zn ores, secondary collector for some copper ores. flotation collector for Pb from Pb/Zn ores and Cu/Pb from Cu/Pb/Zn ores. Improves Ag recovery. collector for Cu and Pb sulfides. Very Weak collecting power for sphalerite and therefore used in the selective flotation for Cu/Pb against zinc sulfides				
				Florrea 2541LF						
				Florrea 2541HF						
		Florrea 2542								
		Florrea 2531								
		Florrea 2517								
		Florrea 2517LF								
Florrea 2517HF										
Collector	Thiophosphate Florrea 2300 series Collector	Florrea 2345	Modified Monothiophosphate	Florrea 2300 series are water solubles excellent copper collectors in acid circuits and in LPF circuits. They are also effective collector at all pH ranges for improving gold recovery. Selective against iron sulfides						
		Florrea 2348								
		Florrea 2348LF								
Collector	Dithiophosphate Florrea 2700 Series Collector	Florrea 2700	Mixture of dithiophosphate	collector for gold-bearing pyrite in acid and neutral circuits. Collector for cerussite in conjunction with xanthate and dithiophosphate Collector for tarnished and secondary Cu minerals, tarnished Pb and Zn minerals, and precious metals in alkaline circuit. Excellent collector for pyrite and auriferous pyrite in acid and neutral circuits. Collector for precious and base-metal ores (Cu, Ni and Zn). Excellent for bulk flotation of poly-metallic ores and pyritic gold ores in acid circuits. Stronger than 2701. May replace xanthate stronger collector than 2702 with same application						
		Florrea 2701								
		Florrea 2702								
		Florrea 2703								
Collector	Florrea 4000 series Collector	Florrea 4000	Formulated dithiophosphate	excellent collector for Copper, gold excellent collector for nonferrous metals sulfides						
		Florrea 4001								
		Florrea 4100								
Collector	Florrea 1000 series Collector	Florrea 1021	ethyl xanthogen methyl formate	The Florrea Xanthogen Ethyl formate series are water insoluble oily liquids that function at all pH values between 2 and 12 and are selective against pyrite except between pH 6-8. They are stable in both acid and alkaline						
		Florrea 1022								
		Florrea 1023								

Reagent	Type	Trade Name	Components	Application	To be combined with					
Collector	Florrea 1000 series Collector	Florrea 1024	ethyl xanthogen butyl formate Isopropyl Xanthogen methyl Formate Isopropyl xanthogen ethyl formate Isopropyl Xanthogen propyl Formate Isopropyl Xanthogen butyl Formate Isobutyl Xanthogen Methyl Formate Isobutyl xanthogen ethyl formate Isobutyl Xanthogen propyl Formate Isobutyl Xanthogen Butyl Formate n-butyl xanthogen ethyl formate p-amyl xanthogen ethyl formate secbutyl xanthogen ethyl formate	pH and do not age with time. These products provide better selectivity at lower dosages and pH ranges compared to xanthate. The Collectors are used in flotation of molybdenum-bearing copper ores, where molybdenum recovery has been increased by more than 10% without adverse effects on copper recovery. They are Collectors for difficulty to float ores such as copper, lead, zinc, nickel sulfides. Extremely effective in providing superior performance in copper activated zinc when xanthates are not present. May replace xanthate when higher quality separation is required. Dosage is 2-50g/ton ore which is 20-75% less than xanthate.	Florrea 1000 series collector Florrea 2000 series collector Florrea 2200 series collector Florrea 2250 series collector Florrea 2300 series collector Florrea 2500 series collector Florrea 2700 series collector Florrea 3000 series collector Florrea 4000 series collector Florrea 7500 series collector Florrea 8000 series collector Florrea 8800 series collector Florrea 9000 series collector					
		Florrea 1031								
		Florrea 1032								
		Florrea 1033								
		Florrea 1034								
		Florrea 1041								
		Florrea 1042								
		Florrea 1043								
		Florrea 1044								
		Florrea 1051								
		Florrea 1060								
		Florrea 1070								
		Collector				Oxide ore collector Florrea 8000 series	Florrea 8103	advanced flotation collector for copper oxides	excellent collector for copper oxide ores	Florrea Xanthate Florrea other collectors Florrea Frothers Florrea500 Florrea510 Florrea515 Florrea520 Florrea522 Florrea525 Florrea530 Florrea535 Florrea540 Florrea545 Florrea550 Florrea560 Florrea565 Florrea570 Florrea577 Florrea580 Florrea590 Depressants Florrea D100 series Activators Florrea A600 series Flocculants Florrea FC300 series
							Florrea 8105			
Florrea 8405										
Florrea 8406										
Florrea 8500	collector for oxide lead		collector for oxide lead ores							
Florrea 8601	collector for oxide zinc		collector for oxide zinc ores							
Collector	Tungsten collector Florrea 7500 series	Florrea 7510 for wolframite	collector for tungsten	collector for wolframite and Scheelite in natural temperature						
		Florrea 7520 for scheelite								
		Florrea 7540 for scheelite								
Collector	Flotation F8800 series Florrea Collector	Florrea 8800	alkyl xanthate ester	Excellent collector for molybdenite on copper/molybdenite ores flotation especially to improve moly recovery. Excellent collector for copper, moly, and sulfidized base metal oxides. May be combined with thiocarbamates and other specialty collectors	Florrea Xanthate Florrea other collectors Florrea Frothers Florrea500 Florrea510 Florrea515 Florrea520 Florrea522 Florrea525 Florrea530 Florrea535 Florrea540 Florrea545 Florrea550 Florrea560 Florrea565 Florrea570 Florrea577 Florrea580 Florrea590 Depressants Florrea D100 series Activators Florrea A600 series Flocculants Florrea FC300 series					
		Florrea 8811								
		Florrea 8822								
Collector	Florrea 3000 series Collectors	Florrea 3001	sodium dialkyl dithiocarbamate	Excellent powerful sulfide collectors and can be used in bulk sulfide flotation for iron sulfides containing precious metals, nickel, copper, lead and zinc. They are much more stable than xanthates, even in acid circuits. Consequently, they are particularly effective for the flotation of most sulfides and precious metals in acid and neutral pH circuits. They are more expensive than xanthates and are usually used as secondary collector						
		Florrea 3002								
		Florrea 3004								
		Florrea 3005								
		Florrea 3009								
		Florrea 3010								
	Collector	Florrea 2000 series Collectors	Florrea 2000	Isopropyl Ethyl Thionocarbamate	Florrea 2000 series collectors are water insolubles, oily liquids that functions well in alkaline flotation circuits (pH7-12) for the recovery of copper sulfides and associated precious metals like gold and silver. It works well with the recovery of tarnished or partially oxidized ores. It has been used to recover copper activated sphalerite, but this is not common. Highly selective against iron sulfides. Due to its high selectivity, it generally requires the conjoint use of a xanthate to insure maximum recovery of middling (composite) particles. It is a fast collector and produces moderate recovery in many applications. It is recommended for porphyry copper deposits, copper ores in tropical climates, and copper-gold ores.					
			Florrea 2001							
			Florrea 2002							
			Florrea 2003							
Collector	Florrea 2250 series Collectors	Florrea 2254	Formulated specialty collectors	Good Collector for copper sulfides and increase recovery for associated gold and silver. Selective against iron sulfides. Suitable for flotation of polymetals sulfides.						
		Florrea 2255								
		Florrea 2256								
		Florrea 2257								
		Florrea 9200				modified newest sulphide collector for non ferrous metals sulphides and precious metals	Stronger collectors at lower pH than standard thionocarbamates but still retain their selectivity against iron sulfides. Excellent collectors for Cu rich minerals and coarse particles. They are oily in nature and should be added neat with some conditioning. They are frequently added with auxiliary collectors to lower the cost.			
		Florrea 9300								
		Florrea 9301								
Florrea 9302										
Florrea 9400										
Florrea 9401										
Florrea 9402										
Collector	Florrea 9000 series Collectors	Florrea 9500								
		Florrea 9600								
		Florrea 9602								
		Florrea 9603								

Florrea Mining Chemicals – Flotation Reagents[III]

Florrea Mining Chemicals – Flotation Reagents[IV]

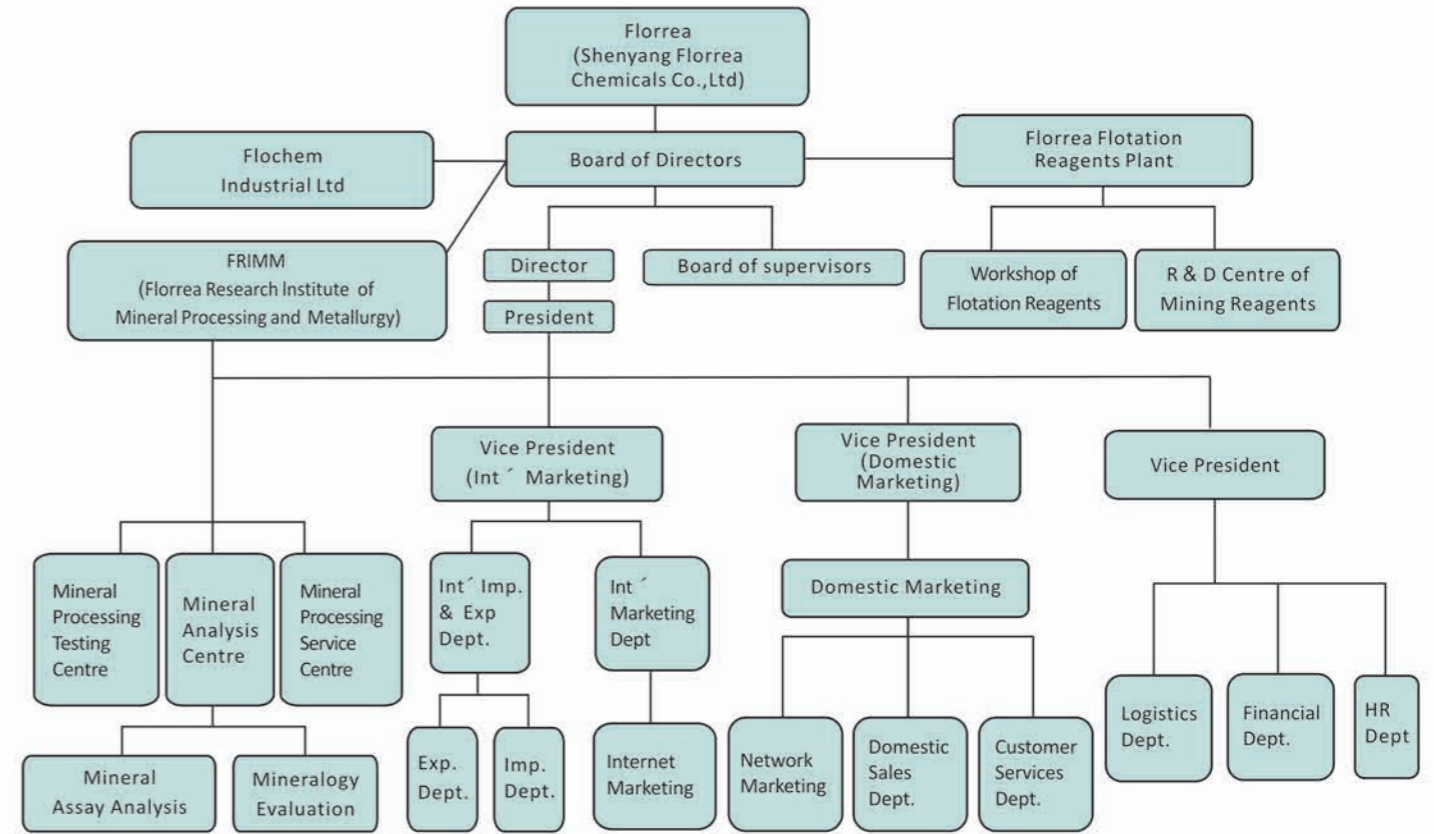
Reagent	Type	Trade Name	Components	Application	To be combined with
Collector	Florrea 9000 series Collectors	Florrea 9612	modified newest sulphide collector for non ferrous metals sulphides and precious metals	Much better selectivity for pyrite than traditional collectors like xanthate,Z-200 (isopropyl ethyl thionocarbamate). Wide Flotation pH value range .It can be used for separation of Cu-Zn and Cu-S, Pb-Zn in low pH range with increase for the recovery of associated Au, Ag, Mo, Pb and Pt. At the same time, it can also be used for flotation separation of Zn-S at high pH values. Tremendously reduce the consumption of lime. The total reagents costs are greatly reduced and the profits of mine are increased. Reducing the dosages of collector,depressant, frothers and activator, and therefore alleviate environmental problem associated with these chemicals collector for polymetals flotation. pH:3.5-10. May replace traditional collectors(xanthate and dithiophosphate)	Florrea Xanthate Florrea other collectors Florrea Frothers Florrea500 Florrea510 Florrea515 Florrea520 Florrea522 Florrea525 Florrea530 Florrea535 Florrea540 Florrea545 Florrea550 Florrea560 Florrea565 Florrea570 Florrea577 Florrea580 Florrea590 Depressants Florrea D100 series Activators Florrea A600 series Flocculants Florrea FC300 series
		Florrea 9700			
		Florrea 9950			
		Florrea 9951			
		Florrea 9952			
		Florrea 9953			
		Florrea 9954			
		Florrea 9955			
		Florrea 9956			
		Florrea 9957			
		Florrea 9958			
		Florrea 9959			
		Florrea 9960			
		Florrea 9961			
	Nonmetal collectors	Florrea 7000	Florrea 7000 collector	collector for non metals: Barite,Cassiterite, fluorite, collophanite, Apatite, calcite	
Frothers	Florrea 500 series Frothers	Florrea 500	frothers for sulphides ores, non sulfides ores, graphite and coal	various Florrea flotation frothers are equivalents to MIBC DOW-200 DOW 250 Aerofroth 65, 76A, pine oil Cytec Orepreg X 133 Flotanol C-7, Flotanol D-13, D14, H 53, H 54, Flotol B,Flotaol 1638 Montanol grades, Sasfroth and Betafroth	Florrea xanthate Florrea1000 series collector Florrea2000 series collector Florrea2200 series collector Florrea2250 series collector Florrea2300 series collector Florrea2500 series collector Florrea2700 series collector Florrea3000series collector Florrea4000 series collector Florrea8000 series collector Florrea8800 series collector Florrea9000 series collector Depressants Florrea D100 series Activators Florrea A600 series Flocculants Florrea FC300 series
		Florrea 510			
		Florrea 515			
		Florrea 520			
		Florrea 522			
		Florrea 531			
		Florrea 532			
		Florrea 535			
		Florrea 540			
		Florrea 545			
		Florrea 550			
		Florrea 563			
		Florrea 565			
		Florrea 570			
		Florrea 573			
		Florrea 577			
		Florrea 581			
				Florrea 590	modified pine oil
		Florrea 595	coal frother		
Depressant	Organic depressants Florrea D100 series	Florrea D-100	new environmentally friendly depressants for copper sulfides which can repalce NaSH and sodium thioglycolate and Nokes reagents		
		Florrea D 101	sodium thioglycolate 20%	Depressant for copper sulfies	
		FlorreaD 102	sodium thioglycolate 40%	Depression of Fe sulfide minerals	
		Florrea D 103	Lignin Sulfonates	Depression of Fe sulfide minerals	
		Florrea D 104	Quebracho	Used in the depression of weathered silicatesand carbonaceous matter	
		Florrea D 105	Dextrin	Used in the depression of magnesium silicates such as talc and pyroxene. Especially useful in the flotation of PGM and Ni ores	
		Florrea D 106	CMC (Carboxymethyl cellulose)	depressant	
		Florrea D 107	Modified CMC	Used alone, or in combination with cyanide, for depression of Zn minerals in the flotation of Pb/Zn, Cu/Zn, and Cu/Pb/Zn ores; depression on talc in by-product molybdenum circuit	
		Florrea D 108	guar gum	Depression of iron sulfide minerals such as pyrite, pyrrhotite and arsenopyrite. Depression of Zn minerals during Pb flotation from Pb/Zn ores	
				Florrea D 109	zinc sulphate
			Florrea D110	sodium cyanide	used as a flotation depressant to depress Sphalerite and pyrite in the flotation of Pb/Zn, Cu/Zn, and Cu/Pb/Zn ores.
			Florrea D111	sodium ferrocyanide	
			Florrea D112	Sodium sulphite	
		Florrea D113	sodium bisulphite		

Reagent	Type	Trade Name	Components	Application		
depressant	Inorganic depressants Florrea D100 series	Florrea D114	sodium metabisulphite	can be used in conjunction with either lime or Na2S for depression of pyrite during flotation of copper-zinc ores. It does not depress Chalcopyrite .On the contrary, it can activate Chalcopyrite.It can be used at lower acid circuit. As for those Sphalerite(zinc minerals) which is strongly activated by copper ion, it is recommended to use sodium sulphite in combination with zinc sulphate, sodium sulphide or sodium cyanide to enforce the depressing performance.		
		Florrea D115	SODIUM THIOSULPHATE	depressant		
		Florrea D116	AMMONIUM THIOSULPHATE			
		Florrea D117	sodium hydrosulphide 70% flake	Used for the depression of Cu and Fe sulfide & Hydrosulfide minerals in Cu/Mo separation.		
		Florrea D118	sodium sulphide	widely used in mineral flotation as depressant, dispersant and as controlling agent of some soluble ions		
		Florrea D119	sodium silicate	depressant for gauge ,used with Florrea depressant D100 can increase concentrate grade		
		Florrea D120	Sodium Hexametaphosphate	Used for the depression of Pb minerals during Cu/Pb separation.		
		Florrea D121	Sodium dichromates			
		Florrea D122	Potassium dichromates			
		Florrea D123	Nokes Reagent(25% Solution)	Used for the depression of Cu and Fe sulfide minerals in Cu/Mo separation		
		Florrea D124	Nokes Reagent (20% Solution)			
		Florrea D125	DETA(Diethylene triamine)	Used as a depressant for pyrrhotite and arsenides in Cu/Ni mineral flotation		
		Florrea D126	Potassium Permanganates	useful in the separation of pyrite from arsenopyrite		
		Florrea D127	Ferro sulfate (FeSO4·7H2O)	depressant and co-depressant for(a) sphalerite together with cyanide (b) fine molybdenite with cyanide		
		Florrea D128	ferric chloride (FeCl3)	depressant for barite in barite–celestite separation. Depressant during niobium–zirconium separation. Ferric and ferrous compounds are not selective depressants and in many cases are detrimental for flotation of oxidic and industrial minerals as in the case of anionic flotation, fatty acid, iron complexes or oleate iron complexes		
		Florrea D129	aluminum sulphate (Al2(SO4)3·12H2O)	primarily used in non-metallic flotation and in by-product molybdenum circuits. In molybdenum circuits, alum is used for depression of talc at pH 7. Also it can be used for talc depression during the treatment of talcous nickel ores together with carboxyl methyl cellulose. Aluminum salts have a depressing effect oncalcite, dolomite and barite. It is used as co-depressant during fluoride flotation from the ores containing barite		
		Florrea D130	aluminum chloride	Similar to aluminum sulfate, aluminum chloride is used as a co-depressant for calcite, fluorite and dolomite		
		Florrea D131	Ammonium sulphate	depressant for sphalerite during flotation of complex copper–lead–zinc ore		
		Florrea D132	ammonium chloride	depressant		
		Florrea D133	sodium fluoride	depressant used exclusively during beneficiation of non-sulfide minerals, as well as the rare-earth minerals as a depressant alone or in combination with other depressants. It is used together with starch as co-depressant for rutile and ilmenite during zirconium– titanium separation or during reverse silicate flotation from rutile and ilmenite with cationic collectors		
		Florrea D134	sodium fluorosilicate	depressant for silicates,specifically topaz, tourmaline and some aluminosilicates.used in the separation of rutile from zircon, pyrochlore from zircon, cassiterite and tantalite and during flotation of cassiterite for depression of topaz, tourmaline and aegirine		
		Florrea D135	potassium fluorosilicate			
		Florrea D136	ammonium sulfide	effective depressant for bornite and covellite		
		Activator	Activators Florrea A600 series	Florrea A611	mixture of activators	Activators for copper oxide,certain minerals do not float well with the use of only a collector, but require prior activation.
				Florrea A612	specialty copper activator	
Florrea A613	specialty copper activator					
Florrea A614	8HQ=8-HYDROXYQUINOLINE					
Florrea A615	TRIETHANOLAMINE					
Florrea A616	sodium polysulfide					
Florrea A620	mixture of activators					
Florrea A621	COPPER SULPHATE			Activation of Zn sulfide and Fe sulfide minerals such as pyrite and pyrrhotite when the latter contain values such as Au, Ni and PGM elements.		
Florrea A622	Lead nitrate			Activator for stibnite on antimony sulfide minerals .Accelerator in cyanidation of precious metals .		
Florrea D131	Ammonium sulfate			activator for copper oxide,recommended to be used with sodium sulfide at ratio of 1:1		
Florrea D117	NaSH=sodium hydrosulphide	Commonly used prior to collector addition for the activation of Cu, Pb, and Zn minerals				
Florrea D118	sodium sulphide					

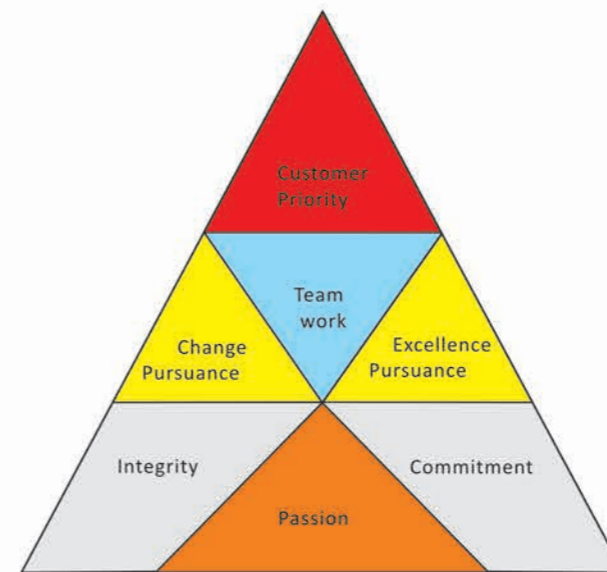


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Florrea Organization



Florrea VALUES



Why Choose Florrea?

Who is Florrea?

Florrea (Shenyang FLORREA Chemicals Co., Ltd) located in China, is ISO9001 Certified world leading Manufacturer and supplier on flotation reagents with 20 years exporting experience and production history in China

What mining chemicals does Florrea Produce and what is its annual production capacity ?
What is the difference between Florrea and its competitors' flotation reagents?

Flotation Collectors	Florrea's production & supplying capacity	Quality Difference	
		Florrea	Some competitors'
Xanthate	30,000mts	100% pure and never blend any cheaper xanthate to cheat customers to get orders. SGS certified. ISO9001 certified. Most reliable quality.	blend cheaper xanthate into higher cost xanthate to lower price without prior notice to customers
Xanthogen formate	5,000mts	Full lines of formates, Best production Technology and higher purity	Unstable Quality due to unstable raw materials and management; high price
Xanthate ester	3,000mts		
Thionocarbamate	5,000mts	Various types and pure quality is guaranteed by GC analysis for each batch.	Blend other impurities to lower price without prior notice to customers
Allyl alkyl thionocarbamate Aero 5100 promoter	2500mts	Stable reliable quality and price competitive, wide range mining reagents	No production due to lack of production technology or Production can be stopped anytime due to environmental problem
Modified functionalized thionocarbamate Aero XD5002 promoters Aero MX promoters	2500mts		
Dithiophosphate	6,000mts	Various types of alkyl and aryl, stable quality. Largest exporter in China.	Few types and small supplying capacity
Monothiophosphate	2000mts	Unique collector with cheaper price	Do not produce
Dithiocarbamate & its esters	3,000mts	Stable reliable quality	Unstable quality
hydroxamate	3,000mts	All types unique collectors with lower price for oxide ores	Production can be stopped anytime due to environmental problem
Tailor made flotation collectors (specialty chemicals)	Florrea's Customized blend are developed exclusively in Florrea's R & D facilities using our team of seasoned field technicians and lab mineralogists		
Flotation Frothers	4,000mts	full line of frothers including alcohol, glycols, glycol ethers and formulations which is well-suited to enhancing frother performance, lower cost	Few products which are used in almost all mining operations and does not maximize the flotation processing
Flotation Activators	2000mts	All types and good for oxide ores	Few types
Flotation Depressants	50,000mts	Copper depressants environmentally friendly	Polluted traditional depressants like NaSH etc
Flotation Flocculants	20,000mts	Lower price and cost effective. Equivalents with flocculants by Ciba, Cytec, SNF	Higher price



Florrea Can Bring You More Value

Why Florrea can produce full lines of the world most advanced flotation collectors with stable quality?

Florrea has a famous branch FRIMM (FLORREA RESEARCH INSTITUTE OF MINERAL PROCESSING AND METALLURGY) since 1993 to get involved into the research and development of NEW flotation reagents together with world famous scientists, researchers, flotation engineers and metallurgists, FRIMM team is proud to have a complete set of flotation reagents including innovated traditional flotation reagents, world most advanced new functionalized flotation reagents and tailor made formulated reagents. FRIMM accumulates good knowledge of flotation reagents application expertise to deliver real value to mining customers around the globe.

What benefits can Florrea Reagents bring to me compared with other competitors?

- Enhanced recovery of all value minerals
- Better separation of gangue
- Improved concentrate grades
- Significant cost savings
- Reduced consumption of collectors and other reagents
- Greater control of the flotation circuit
- Stability and avoidance of hazardous decomposition products
- Low environmental toxicity
- Replacement of xanthate by a new Florrea reagents suites

Who has used Florrea's flotation reagents?

Florrea Products have been used within the minerals industry in over 10 years in over 30 countries by 180 mines from large mining consortiums to small businesses like: XSTRATA, BHP, CODELCO, RIO TINTO and FLOMIN etc. to improve and optimize the recovery of minerals and also for the reduction of total production cost in the concentrator operations, while minimizing environmental impact.

What ores can Florrea reagents be used?

Florrea mining reagent are widely used for the flotation of both sulfide and oxide ores.
-Base metals :copper, copper-molybdenum, zinc, lead, nickel, cobalt and polymetals
-Platinum group minerals
-Precious metals :gold and silver

Does Florrea new flotation reagents has any safety and health problem?

Florrea follow a policy of Responsible Care, we support our products with guidance and advise as to their use in the processes for which they are intended. The safe use, the individual hygiene aspects and the safe disposal of our products as the critical aspects of our mining chemicals.

What can Florrea do for the mining industry?

Florrea offers a full range of products and services including value added flotation reagents, consulting, ore testing, flotation and Metallurgical Laboratory services, and mine-site technical service.

What MINING SERVICES can Florrea offer?

- Flotation plant design
- Flotation plant modification
- Flotation plant commissioning
- Flotation plant trouble shooting and problem solving
- On-site education of operators and metallurgists on the theoretical and practical aspects of mineral flotation, flotation reagents application and safety
- Lab ore mineralogy analytical service
- Lab flotation testing service
- Mine-site flotation testing (plant trial)
- Consulting (flotation, mineralogy, mining, geometallurgy and sustainability)



Florrea VISION

TO DELIVER THE BEST VALUE ADDED FLOTATION REAGENTS AND TECHNICAL SERVICES TO MINERAL PROCESSING

- **Lowered cost of flotation reagents** helping mining customers to spend less money in procurement. Our specialized technician is dedicated to work with mine end-users to develop and provide the most Cost-effective flotation reagents formulations, which is specific and most suitable for an individual mine and no others
- **Improving recovery of value minerals** helping mining customers to make more money, thus providing highest return on shareholders' investments.
- **To provide environmentally friendly flotation reagents** to achieve sustainable development for the mine site.

Florrea Mission

Customers

Assist them to get much more real value with better flotation, to provide the most Cost-effective flotation reagents and new functionalized mining chemicals, thus achieving maximum ore recovery and highest return to mines' share holders and contribute to the world mining development scientifically

Partners

Developing win-win beneficial long term relationships

Employees

To provide a harmonious and happy environment of continuous growth

Shareholders

To provide above-average return of its investments

Flotation Activators

Florrea A 600 series activator is quite effective for oxide copper, lead and zinc and other minerals. As an activator we can also offer sodium hydrosulphide (NaSH) or sodium sulphide Like Florrea A118 activators in flake form.

Flotation Depressants

The Florrea D100 series flotation depressants are organic and inorganic chemistries. They are widely used as a copper depressant in Moly flotation circuits, and depression of magnesium silicates such as talc and pyroxene in Cu-Ni separation, and depression of others etc

Flotation Flocculants

We are now in a very competitive position to supply flocculants used in the mining industry. Florrea F 300 series flocculants is equivalents and cost effective compared with the flocculants by Ciba, Cytec, SNF etc. Large quantities of water are used in the mining industry in order to separate valuable ore from its gangue and, at some stage in the process, it is necessary to separate the solids from the liquid phase. Florrea Laboratory has the capability to perform sedimentation tests (jar tests) with customer tails, to find a flocculants with better performance.

Flotation Collectors

Florrea has a wide range of collectors that provide varying levels of power and selectivity for both sulfide and industrial mineral applications. Each of the following basic product families have a variety of derivatives to accommodate the needs of each particular ore. In most cases, our custom formulations of these basic chemistries are developed to meet the industrial needs of the mill. Besides traditional known collectors, Florrea also have active programs in place for developing site specific blends and new products across the froth flotation spectrum.

Flotation Frothers

Florrea F 500 series frothers is a full range of flotation frothers including alcohol, glycols, glycol ethers and formulations which is well-suited to enhancing frother performance. Florrea mining frothers is suitable for Mineral processing of basemetal sulphides, precious metals (gold, silver, PGEs), industrial minerals, coal and various other non-sulphides. In developing "frother" products. Our aim has been to improve flotation kinetics by influencing the induction time for solid/bubble contact. More rapid loading of hydrophobic particles into the froth phase is required in order to reduce gangue entrainment. Through the development of products that limit water recovery whilst maintaining froth mobility, we have been able show improvements in grade and/or recovery.

Florrea Mining chemicals are equivalents to the common known flotation reagents branded with the names of Aero promoter, Aero float, Hostafloat, Danafloat

Base Tionocarbamato Matcol, D-101 Mathiesen NP-107 Clariant, AERO 3894 PROMOTER Base Xantoformiato Colector de cobre Dialquil Xantoformiato. Aero 3758 Promoter (ex SF-758); Hostafloat P-24 Z-11, AERO 343 XANTHATE, AERO 317 XANTHATE, SF-113, XANTATO RENASA, XANTATO SF-926, Z-9, Z-3, Z-4, Z-7, Z-14, Z-6, SF-114, Z-200, MINERE C 1661; HOSTAFLOT X-23; SF-323, SF-554, DANAFLOAT 262, AERO 5100 PROMOTER, AERO 211 PROMOTER, HOSTAFLOT LIP, SODIUM AEROFLOAT PROMOTER, HOSTAFLOTLET, DANAFLOAT 145, AERO 3477, SF-554, HOSTAFLOT LIB, DANAFLOAT 245, AERO 3501 PROMOTER, HOSTAFLOT LAM, AERO 238 PROMOTER, DANAFLOAT 345, SF-3501, DITHIOPHOSPHATE 255, AERO 208 PROMOTER, DANAFLOAT 468, AEROFLOAT 31 PROMOTER, AEROFLOAT 241 PROMOTER, Flotanol C-7, AEROFLOAT 242 PROMOTER, AERO 404 PROMOTER, HOSTAFLOT M 91, AERO 407 PROMOTER; DANAFLOAT 271, 571, AERO 4037 PROMOTER, MIBC, DANAFLOAT 507, 507C, 517, AERO 6697 PROMOTER, AERO 3302 PROMOTER, AERO 400 PROMOTER, DANAFLOAT 171, AERO 7249 PROMOTER, AERO 9887 PROMOTER, AM2, AERO 5460, AERO 5415, REAGENT S 5569, S5570, S5500, AERO 7016, AERO 7279 PROMOTER, AERO 7249A PROMOTER, AERO 5547 PROMOTER, AERO 7151, AERO 7640, AERO 7518, MX7015, AERO 6682, PROMOTER, Dowfroth 200, Dowfroth 250, AERO 5747 PROMOTER, AERO 845 PROMOTER, AERO 7380 PROMOTER, AERO 5540, AERO 5560, AERO 8809 PROMOTER, AERO 8985 PROMOTER, AERO 8987 PROMOTER, AEROFROTH 65 FROTHER, AEROFORTH 70 FROTHER, AEROFROTH 76A FROTHERS, OREPREP FROTHERS X-133, AERO XD 5002 PROMOTER, AERO MX5149 PROMOTER, MX 3048, AERO 9887 PROMOTER, MONTANOL 800

