



Platinum-Palladium ores

Platinum group metals (PGM) occur in many copper-nickel ores where pentlandite is present, particularly for reef type ore bodies. Other sulphide minerals also typically associated in PGM ores are chalcopyrite, chalcocite, pyrrhotite and pyrite.

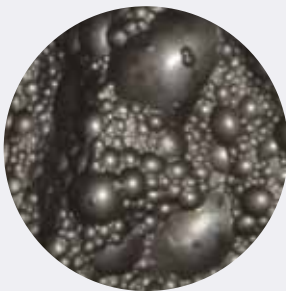
The actual PGMs are generally associated with all these minerals. These ores often have very high talc content which significantly impacts flotation.

Maximizing PGM recovery requires flotation of all sulphide mineralization which is often done at natural pH of 8-9 to avoid depressing the PGM containing iron sulphides. Often copper sulphate is added to ensure high activation of all sulphide minerals. The reagent suite often employs a combination of a xanthate and dithiophosphate collectors. Lime should not be used if PGM values are associated with iron sulphide minerals but soda ash can be used. Another benefit using soda ash is that it softens process water, controlling the hardness ions which have an iron sulphide depressive effect when at sufficient concentrations.

The high talc levels can significantly and negatively impact PGM concentrate grades and recoveries.

Since talc is generally fairly to very hydrophobic, the very fine talc slimes can adhere to air bubbles to such a degree that talc 'crowds out' the PGM-containing minerals on the bubbles and therefore reduces PGM recovery. Typically CMC is used to depress the talc. Further, use of low frothing reagents is beneficial to minimize talc flotation.

Often MIBC is the frother of choice because it is a weaker frother. Mercaptobenzothiazole (MBT) is an effective collector in acid circuits where acid pH is found to be advantageous.



The following Danafloat™ collectors should be initially considered for PGM ore flotation:

Danafloat™ 233
Danafloat™ 245
Danafloat™ 271
Danafloat™ 468