

FLOTRON DP

Cationic Collector for Reverse Flotation of Silica and Silicate Minerals

Product Bulletin

Clearer separation. Cleaner concentrate. Proven industrial application.

FLOTRON DP is a ready-to-use cationic flotation collector designed for the selective flotation of quartz and silicate minerals from mineral slurries.

The product is primarily intended for **reverse flotation of iron ore**, where silica-bearing gangue minerals are floated into the froth product, while the valuable iron-rich concentrate remains in the flotation underflow.

FLOTRON DP is based on alkyl ether amine chemistry and is designed for industrial flotation circuits where stable silica rejection, low iron losses and reliable plant-scale dosing are critical.

A key practical advantage of FLOTRON DP is that no separate conditioning stage is required. The reagent can be introduced directly with the flotation feed, enabling efficient contact with quartz and silicate particles under normal plant operating conditions.

KLIMANA provides not only the reagent itself, but also technical support and on-site reagent preparation and dosing equipment for proper industrial application.

Key Applications

Reverse Flotation of Iron Ore

The main application of FLOTRON DP is reverse flotation of quartz and silicate minerals from iron ore concentrates.

In this process, quartz and other silica-bearing particles are floated, while the iron concentrate remains in the flotation cell product.

Typical objectives include:

- reduction of SiO₂ content in iron concentrate;
- improvement of concentrate quality;
- reduction of iron losses in flotation tailings;
- improved selectivity of silica removal;
- support of downstream pelletizing or sintering performance;
- optimization of reagent schemes according to existing plant conditions.

Product Function

FLOTROn DP improves the hydrophobicity of quartz and silicate particles, enabling their selective removal by froth flotation.

The product is suitable for reverse flotation circuits and can be adapted to the existing reagent scheme of a particular concentrator.

Quartz and acidic silicate minerals are typically floated with higher efficiency and selectivity in weakly alkaline conditions. A typical effective pH range is around **pH 8.5–9.0**, although operation may also be possible in broader pH ranges depending on ore mineralogy, water chemistry and the overall reagent scheme.

Industrial Experience

The reagent technology behind FLOTROn DP has long-term industrial application experience in Ukraine.

These operations process magnetite quartzites using flotation beneficiation technology, where cationic collectors are applied for reverse flotation of quartz and silicate minerals.

Reported Industrial Effects

Based on reported industrial application experience in Ukraine, the use of Flotron DP technology in iron ore flotation circuits has been associated with:

- increase in concentrate yield by **2.0–4.0%**;
- reduction of total Fe content in flotation tailings by **2.5–5.0%**.

Actual performance depends on ore mineralogy, feed composition, flotation circuit configuration, water chemistry, pH, reagent dosage and plant operating conditions.

Laboratory testing and pilot trials are recommended before full-scale industrial application.

Benefits for Iron Ore Producers

FLOTROn DP is intended to support:

- selective flotation of quartz and silicates;
- lower silica content in final concentrate;
- reduced iron losses in flotation tailings;
- improved concentrate yield;
- stable performance in reverse flotation circuits.

Application Guidelines

FLOTRON DP is supplied as a ready-to-use flotation collector.

No reagent preparation by the customer is normally required. For industrial application, KLIMANA can provide on-site reagent preparation and dosing equipment to ensure correct dispersion, stable feeding and reliable distribution of the collector in the flotation pulp.

Typical Dosage Range

The typical dosage range for reverse flotation of iron ore is:

110–170 g/t of flotation feed

Physical and Chemical Properties

Property	Typical Value
Chemical type	Alkyl ether amines blend
Appearance	Yellowish or clear liquid
Ionic character	Cationic
pH, 10% solution	approx. 9
Solidification point	< –20°C
Solubility in water	Partially soluble
Density at 20°C	approx. 0.91 g/ml
Viscosity at 20°C	< 50 mPa·s

Packaging

FLOTRON DP can be supplied in industrial packaging suitable for plant-scale reagent handling.

Typical packaging options:

- metal drums, **190 kg**;
- IBC containers, **880 kg**.

Other packaging formats may be available upon request.

Storage and Handling

Store FLOTRON DP in tightly closed original containers under normal storage conditions.