



Indian Standard — IS 333 : 2023 Potassium Permanganate — Specification (Third Revision)

Potassium permanganate is an *inorganic compound* with the chemical formula **KMnO₄**. It is a *purplish-black crystalline salt*, that dissolves in water as K^+ and MnO_4^- , producing an intensely pink to purple solution. The *colouration of purplish-black* of solid potassium permanganate, and the intensely pink to purple colour of its solutions, is caused by its **permanganate anion**.

It is a powerful **oxidizing agent** as it readily donates oxygen atoms, enabling it to oxidize various organic and inorganic compounds. This quality makes it valuable for **bleaching, decolorizing, and disinfecting purposes**.

Potassium permanganate is widely used in the *chemical industry* and *laboratories* as a strong oxidizing agent or bleaching agents. It also finds its uses in *leather tanning*, in the *production* of *saccharin* and *benzoic acid*; bleaching and decolourising ethereal oils, waxes and fatty materials; staining and preservation of wood; and as a *deodorant* and *disinfectant*.

Potassium permanganate is **CAUSTIC**, and its concentrated form **can cause burns on skin contact or ingestion** and thus it is to be handled carefully.

Consumers expect high-quality potassium permanganate with high purity levels, minimal insoluble matter, and low levels of contaminants like chlorides, sulfates, nitrogen compounds, and arsenic. These qualities ensure it performs efficiently as an oxidizing agent and meets safety and performance standards, especially in applications sensitive to impurities.

To address these consumer expectations, Bureau of Indian Standards (BIS) has published **IS 333 : 2023 Potassium Permanganate – Specification**, which specifies the requirements of material quality and testing methods for *three grades* of potassium permanganate: *technical, pure, and analytical reagent (AR)*. It was originally published in 1951, with subsequent revision in 1969 and 1980.

It mandates purity of potassium permanganate, limits insoluble matter and specifies maximum permissible levels of impurities (e.g., chlorides, sulfates, nitrogen compounds, and arsenic). It also outlines details on *physical characteristics, packaging, marking, sampling*, and *test procedures* such as *titration, spectrometry, and ion chromatography*, to verify compliance of requirements.

By adhering to IS 333:2023, suppliers can assure consumers that the potassium permanganate they purchase is of high quality, safe, and suitable for its intended applications.