COMBUSTION ADDITIVE DOLOMITE FORMULATION

INTRODUCTORY-

Fouling problems during coal combustion in various type of boilers are being faced in the past globally. They have been encountered time to time by varieties of chemical additions. Modification of System design and metallurgical development then follow.
Starting and stopping of unit using furnace oil try to further complicate the issues like slagging, fouling ,corrosion and scaling on combustion side of first or second path.

Alkali metals like Sodium, Potasium, Vanadium Sulphur form are known to form low melting oxides or double oxides which leads to slagging and fouling not only in the first path but also create loose deposits in the second path which comprises of Super heater, economiser and even blades of Induced Draught Fans are not omitted from deposits and corrosion.

Incomplete combustion of natural combustibles like Carbon and Nitrogen compounds leads to toxic gases like NOx, Sox, CO, Ammonia and Hydrocarbon compounds.

Approach-

Chemical additives based on Alumina or Magnesium formulations have been practiced time to time to meet the adverse effects on the running boilers.

Off late, Dolomite based formulation with following composition have super seeded the previous practices.

$CaCO_3$ -48% -53%.....50%-55%
$MgCO_3$-34%- 38%.....37%-40%
Silica-$5-5%.....(lower SiO_2%)

Dolomite takes care of low melting Alkaline Sodium and Vanadium, and Acidic Sulphur Oxides by converting them into higher melting Magnesium or Calcium sulphates of neutral nature. Even Ammonium sulphate is neutralised by Magnesium.

Mangenese and Transitional Elements like Fe.,Co act as Catalysts and help in proper Combustion of carbon in coal.