



MagCare Coal Additives

1. Introduction

Globally burning of coal for power generation has been associated with operational problems like incomplete combustion, slag formation, corrosion and loss of efficiency; SO_x , NO_x and Particulate emissions. SO_x emission is causing acid rains. India and China are big contributors to the emissions from coal firing. There are different grades of coal like sub-bituminous, bituminous, lignite and anthracite. They have different characteristics.

There is no universal additive and treatment method to deal with the coal combustion problems. The treatment methods are tailor made to meet the local environmental regulations, type of coal fired, individual target of the end user power plant, their budget etc., For this, Magcare is fully prepared and on this basis the coal additives have been formulated. Magcare range of coal additives are manufactured/formulated in its facility in India supported by well experienced combustion experts, engineers and technicians. It also has the capabilities to design and supply the dosing systems. Magcare team, as part of its commitment, lends its technical support free of cost to its customers located anywhere in India on 24x7 basis and impart required training to its personnel. Daily operational data are analyzed and timely advice provided to the customers to avoid surprises.

2. About Magcare Coal Additive

MagCare contains nano sized particles which are highly reactive due to high surface area and hence consumes less.

Sophisticated manufacturing process ensures extremely stable product that will not settle even if not used for longtime.

Basic additive contains around 70% of the active substances.

MagCare is a ready to use product and can be easily metered directly into the fuel handling system. The dosage rate depends on the type of coal and the target desired by the power plant customer.

3. Magcare Coal Additive Advantages:

- ◆ The basic additive is highly reactive sub-micron alkaline earth metal-based combustion catalyst for use as an anti-slugging and corrosion inhibitor for coal combustion.
- ◆ It combats corrosion in hot-end and at the back end including the additional SO_3 generated by SCR catalyst.
- ◆ It ensures that the SO_3 generated is converted into Sulphate and that it is not corrosive. The boiler conversion rate is kept under control.
- ◆ It also ensures that the hard deposits made soft and friable which help to increase the heat exchange leading to increase steam out-put thereby saving fuel.
- ◆ It provides more oxygen, reduces ignition temperature which helps maximum burning of unburned coal and thereby reduces the consumption of the coal.
- ◆ It catalyzes the combustion thereby burns more fuel that helps in saving the coal.
- ◆ Our additive treatment improves the ash collection efficiency of ESP and protects the ESP hoppers.
- ◆ The ash generated is of good quality to be used as raw material for making blocks, as a raw material in concrete, grout and cement or as a fill material in stabilization projects and road beds.

4. Performance High-lights

- ◆ A new generation coal additive helps to solve the coal combustion problems and the following advantages gained:
- ◆ SO_x emissions down up to 30%.
- ◆ NO_x emissions up to 10%.
- ◆ CO reductions up to 100%.
- ◆ Elimination of blue plume due to SO_3 .
- ◆ Reduction of black smoke (PM reduction).
- ◆ Improved combustion and the unburned carbon reduction achieved 10% and above.
- ◆ Clean surfaces and the efficiency increase 10% and above.

- ◆ Harmful products of combustion are neutralized. They are turned to low melting and fall before reaching the surface. Further the additive makes the deposits if any on the surface to loosen thereby free the surface for improved heat exchange leading to increase in efficiency.
- ◆ Fuel saving up to 10% and above. Additionally the stack temperature can be reduced to save the fuel due to lowering the ADP.
- ◆ Elimination of corrosion at Furnace, Economizer, APH, Ducts, Dust Collectors, ESP and Stack which depends on the boiler configuration.
- ◆ No acid smut.
- ◆ Improved ESP performance in collecting the ash.
- ◆ No frequent outages due to APH chocking and no loss of power.
- ◆ Countering the effect of SCR catalyst in back-end corrosion .
- ◆ Local manufacturing facility and hence saving in FE.
- ◆ Good ROI.
- ◆ Technical support by qualified combustion expert having more than 20 years hands on global experience in power plant application of various fossil fuels in boilers and turbines.
- ◆ Locally stationed technical support personnel on 24x7 basis.
- ◆ Day to day follow-up of plant operations and periodic report submission to the plant management.
- ◆ Free training for plant engineering and other technical staff.
- ◆ Free dosing system

5. Shelf-Life

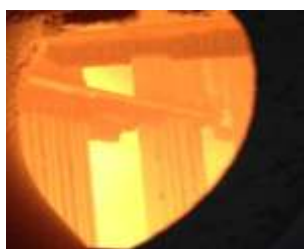
Shelf life for slurry is ONE YEAR. The product found to be stable even for longer duration with no settlement or separation if stored in closed containers.

6. Dosing

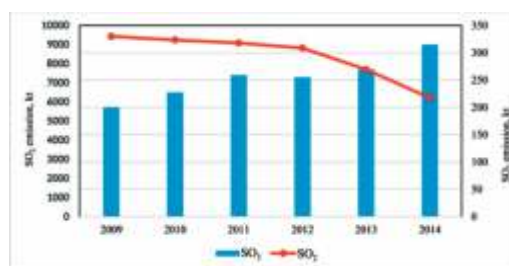
Dose rate is decided after analyzing various aspects like quality of coal, operational parameters, boiler configuration, other associated ancillary equipment etc.



MAGCARE FAMILY OF ADDITIVES A FEW ADDITIVE TREATMENT METHODS



SLAGGING ON BOILER COAL TUBES



SO₃ EMISSIONS FROM A COAL FIRED POWER PLANT



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