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Paragon Airheater Technologies Announces a New Power Plant Product: *DuraTEC™* – *Tempered Enamel Coating*

CORONA, Calif.--(BUSINESS WIRE)--Paragon Airheater Technologies (www.paragonairheater.com), the manufacturer of high performance retrofit products for rotary, regenerative airheaters used in power plants, has introduced a revolutionary new product, DuraTEC™ - Tempered Enamel Coating. http://www.paragonairheater.com/duratec.htm

The DuraTEC™ technology is the outcome of a 7-year international research and development project. This new revolutionary technology provides a longer life span of the heating element, improves or maintains the designed thermal performance of the surface configuration as well as it reduces emissions through its imbedded catalyst component. The technology will dramatically improve the reliability and fuel efficiency of coal-fired power plants; especially in plants installing and operating new pollution control devices designed to reduce NOx emissions from coal-fired power plants.

"The DuraTEC™ coating can also be supplied with an SCR type catalyst imbedded onto the enamel surface of the airheater element. This additional catalyst layer is capable of cost effectively reducing the quantity of NOx emissions from a power plant beyond that of the SCR that is already in place."

DuraTEC™ is a new nanotechnology tempered vitreous (porcelain) enamel coating that is applied onto the element sheets of the power plant's regenerative airheaters. In coal-fired power plants, regenerative airheaters increase the efficiency of the plant (i.e. reduce coal consumption) by 10% to 15%, and for every ton of coal that is conserved, about 2.4 tons of the greenhouse gas CO_2 is eliminated. The element sheets inside an airheater act as a huge heat sink that is used to preheat the air before it goes into the boiler to reduce the amount of fuel that is required for combustion. These element sheets can easily exceed one million square feet per power plant. DuraTEC™ is highly effective in reducing airheater problems that are caused by the undesirable corrosive and fouling side effects of burning fossil fuels as well as the compounded side effects of operating NOx pollution control devices. This corrosion and fouling can cost a plant millions of dollars per year in excess fuel cost, lost production and destructive airheater corrosion.

Oxides of Nitrogen (NOx) are a pollutant formed during combustion in fossil fuel fired power plants. Since NOx is recognized as a pollutant associated with the formation of acid rain, most fossil fuel power plants already have, or will soon install, Selective Catalytic Reduction (SCR) systems as a post combustion method to reduce NOx emissions.

SCR's operate by combining NOx with ammonia (NH_3) in the presence of a catalyst to produce pure nitrogen (N_2) and water (H_2O). While very effective in reducing the NOx emissions from power plants, the SCR process also reacts with the sulfur in coal to produce a byproduct, ammonium bisulfate (ABS), which has a significant detrimental effect on the efficiency and reliability of a critical fuel saving power plant component, the regenerative airheater.

According to John Guffre, Chief Research Scientist for Paragon Airheater Technologies, "Unfortunately, this ABS byproduct results in heavy plugging, corrosion and efficiency reductions in the plant's airheaters. The result is that these plants can be impacted to the tune of millions of dollars per year due to fuel consumption increases, airheater repairs and lost production due

to plant non-operation during repair periods."

Until now, the power industry has not had an effective way to deal with the severe airheater issues associated with ABS deposits. Attempts at using conventional porcelain enamels (similar to those used on stovetops and inside ovens), have had only limited success in reducing ABS plugging and have lacked in durability and corrosion resistance, often shortening the life of airheater element compared to uncoated element and dramatically reducing the efficiency of the airheater.

According to Guffre, "The nanotechnology used in DuraTEC™ - Tempered Enamel Coating was specifically developed for power plants equipped with SCR's and the produced ABS byproduct. Using nanotechnology, the DuraTEC™ coating provides an unparalleled 'non-stick' surface texture to eliminate ABS deposition. Also, DuraTEC™'s patented formulation and proprietary thermally controlled multilayer applications result in four separate corrosion resistant layers on the airheater element surface to dramatically increase the life expectancy and durability of the airheater as compared to bare steel or traditional standard enamel."

In addition, Guffre says, "The DuraTEC™ coating can also be supplied with an SCR type catalyst imbedded onto the enamel surface of the airheater element. This additional catalyst layer is capable of cost effectively reducing the quantity of NOx emissions from a power plant beyond that of the SCR that is already in place." He adds, "We expect great acceptance of this new product by the power industry and have already had significant interest expressed by a number of power companies as well as suppliers of SCR's for power plants."

Paragon specializes in the development and manufacturing of high-performance products and related replacement parts for rotary, regenerative airheaters. Paragon is establishing a broad presence in the energy market worldwide. Paragon's product lines are specially designed to improve the fuel efficiency of power plants and reduce the emissions of pollutants while withstanding the harsh operating conditions normally encountered in the airheater.

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