Kamco
Solutions to scale

SOOTBREAKER combustion deposit remover

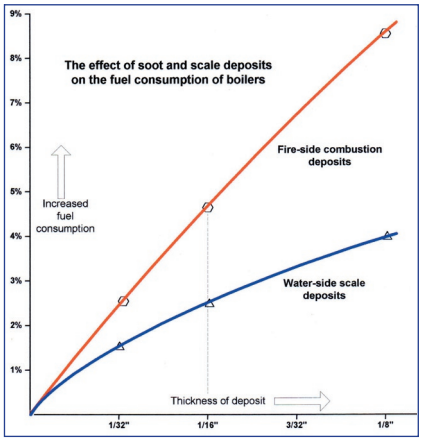
boiler cleaning powder for sooty combustion deposits

SOOTBREAKER

- Improves heat transfer efficiency
- Maintains boiler efficiency
- Saves on fuel costs
- Reduces boiler downtime
- Minimises metal-damaging deposits
- Minimises smoke and smut emissions.

COMBUSTION DEPOSIT PROBLEMS

Sooting, clinker and corrosive combustion deposits are common fireside occurrences in boilers, air heaters and furnaces. Such deposits have to be removed manually by brushing, scraping, or by rotary cutters. Such cleaning is rarely perfect, and often cannot reach inaccessible sections of the heating plant.



The adhesive properties of unburnt carbon result in a build-up of incombustible solids, ash, and carbon on heat transfer surfaces. The carbon and other deposits act as a thermal barrier, reducing heat transfer and boiler efficiency, and leading to higher stack temperatures in the boiler or air heater. The reduction in heat conductivity relates to a reduction in efficiency, as shown in the graph.

The solution - *SOOTBREAKER CDR*

HOW IT WORKS: SOOTBREAKER CDR is a complex chemical formulation for fireside removal of combustion deposits. It contains dispersants, combustion catalysts, oxidising chemicals and corrosion inhibitors.

SOOTBREAKER is a free flowing powder, non-toxic and safe to handle. It is fed directly into the combustion chamber while the boiler is in operation, or, alternatively, may be introduced into the combustion chamber of a hot boiler, immediately before re-firing it.

When the chemicals enter the high temperature zone, they vaporise, and deposit as a thin film on heat transfer surfaces throughout the boiler. The combustion catalysts reduce the ignition temperature of the adhering carbon, permitting it to burn at reduced temperatures.

Oxidising agents provide a temporary excess of oxygen to assist combustion of carbon and other combustible material in the deposits. These burn away, leaving a micro-cellular structure within the deposit, which then becomes friable. The bond between the deposit and boiler metal is broken, causing residual non-combustible matter to fall away from the heat transfer surfaces.

A significant improvement in fireside cleaning of boilers:

SOOTBREAKER is formulated specifically to loosen stubborn deposits from boiler, heater and furnace heat transfer surfaces, and to minimise the sooty, corrosive deposits which reduce heat transfer and operating efficiency.

SOOTBREAKER enables boilers to be cleaned whilst they are actually operating, removing the need for shutdown of plant for removal of the combustion deposits formed when liquid fuels are burnt.

These deposits act as insulants on the heat transfer surfaces. The hot combustion gases become less turbulent, retaining more heat, which is then lost up the chimney. As a result, for a given heat output, more fuel is required.

Whilst traditional boiler cleaning methods lead to a sharp decrease in efficiency and increase in stack temperature between shutdowns, regular use of SOOTBREAKER maintains boilers at peak efficiency continuously.

How combustion deposits reduce boiler efficiency				
Soot thickness, in mm	0.8	1.6	3.2	4.8
Loss in heat conductivity	9.5%	26.2%	45.3%	69%

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Sootbreaker boiler cleaning powder

SOOTBREAKER DOSAGE RATES:

Boilers operate under many variable conditions, and therefore the optimum dosage rates can best be determined by actual experience. However, the following table gives a good guide to quantities required.

Boiler rating / output		kg. of SOOTBREAKER required for regular 14 day dosage			
kg. steam per hour	K.cal	Heavy fuel oil	Medium fuel oil	Light fuel oil	Gas oil
Up to:	Up to:				
225	125,000	-	-	-	0.3
450	250,000	-	-	-	0.5
700	375,000	1.5	1.0	1.0	0.75
1,400	750,000	3.0	2.0	1.5	1.0
2,750	1,500,000	3.5	3.0	2.5	1.5
3,650	2,000,000	5.0	4.5	4.0	2.0
5,500	3,000,000	6.0	5.0	4.5	-
7,000	4,000,000	6.5	6.0	5.5	-

Notes:-

1. The above dosage rates are for regular fortnightly treatment. An initial purge dosage of up to four times the above quantity may be indicated for boilers which already have a deposit build-up.

2. As a guide to the variation of treatment with boiler output, allow 100gm SOOTBREAKER per tonne of fuel burnt.

3. After the second treatment, any large accumulations of loosened deposits should be vacuumed out of the boiler, to allow further treatments of SOOTBREAKER access to any remaining hard scale.

SOOTBREAKER is available in two standard packs:

• Cartons of 50 x 350 gm SOOTBREAKER tubes for smaller boilers, or those where access is difficult. They are usually introduced to the combustion chamber through an inspection hole, view hole, or entry port.

• 25 kg bulk drums for larger users with large individual plant or multiple smaller units.

Electrical and air operated powder blowers are available for injection from canisters and bulk drums.

TREATMENT PROCEDURE:

The method of introduction of SOOTBREAKER varies with the type of boiler and access to the combustion chamber, and this will decide the type of pack chosen.

Generally, the most important requirement is that the combustion zone temperature is ***at least*** 350°C, or that the heat transfer surface is ***at least*** 80°C.

SOOTBREAKER is introduced into the combustion chamber while the boiler or heater is in operation, after the boiler has been brought up to working temperature #. In the case of fire tube boilers, the boiler is briefly turned off., the SOOTBREAKER introduced into the combustion chamber, and the boiler re-fired immediately.

SOOTBREAKER tubes are thrown, ***complete and unopened***, into the combustion zone through the fire door, entry port, or other convenient access point.

A rule of thumb guide is to ensure that the boiler has been functioning continuously for a minimum of one hour before application of SOOTBREAKER.

Stockist: