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ITALIA



BEAUMONT PRODUCTS FOR EMISSION CONTROL COKE PLANTS and STORAGE PILES

Beaumont Italia is specialized in technologies for emission control in coke plant and storage piles.

The sources of the atmospheric emission in which we have concentrated our research for a tight control of them are:

- ✓ Coal and mineral storage piles, conveyor belts and roads (dust).
- ✓ Charging holes and oven doors during coal loading and distillation stage (dust and gases).



For each of these phases Beaumont Italia studied the most appropriate solution :

Emission source	Emission type	Product	Working
Coal and mineral piles, conveyor belts, roads, etc.	Dust	M 744 M 750 FB	Filming Dust Blasing
Charging caps	Gases and fumes	SK-Plus	Sealing
Doors of the ovens	Gases and fumes	GP7	Sealing
Telescope of coal charging car	Gases and fumes	BMT	Gasket



Beaumont and dust suppresion



A technological support to safety and environment

Fossil and mineral piles coating

Dust control in industrial areas, especially in raw material stocking fields, is of particular importance for at least three aspects:



Control of polluting emissions



Control of material losses



Cleanliness of plant equipment

Fossil and mineral piles coating

M 744 / M750 FB

To control atmospheric loss of stocked dust material it is being used for several years the additivation with polymeric products that create on the treated surface a temporaneous semi-rigid film that avoid dusting in the surrounding areas.

Product is efficient due to:



Film elasticity



Film formation time



Resistance to climate factors

Fossil and mineral piles coating

M 744 / M750 FB

Each of these three issues is influenced by the molecular weight of the polymer and by the type of surfactant used .

A proper distribution is fundamental for the efficacy of the treatment.



Fossil and mineral piles coating

M 744 / M750 FB

The most recent development of the research for a highly effective tool to distribute the coating agent has led to a new type of atomizing cannon.

The powerful jet of finely dispersed droplets allows:

- ✓ Capturing of air suspended dust
- ✓ Extremely homogeneous coating
- ✓ Fast coverage of wide surfaces
- ✓ Easy handling and positioning
- ✓ Accurate distribution

The Cannon

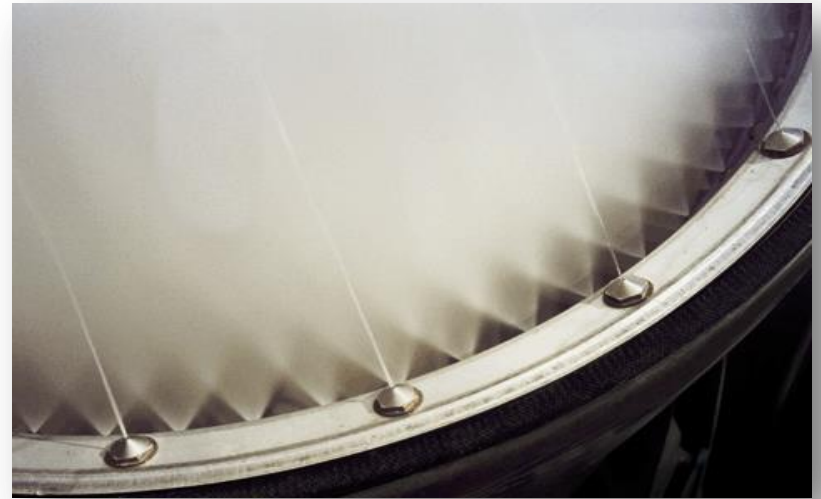


Fossil and mineral piles coating

The Cannon

M 744 / M750 FB

The cannon jet can reach distances between 50 m and 250 m, depending on the model, and rotates over an angle of 270°. It can cover a surface from 5,900 to 130,000 sqm with a single machine.



Fossil and mineral piles coating

M 744 / M750 FB

Coating treatment on
train transported coal



Gases and fumes control: our specialties

- **Sealing of coke oven charging hole caps**
- **Sealing of coke oven doors**
- **Gasket for the telescope of the charging car**

Coke Oven Sealing

A technological support to safety and environment



Sealing of coke oven charging hole caps

SK Plus 2

Charging holes sealing is one of the first operations adopted in the cokery to prevent and minimize gas emissions in the atmosphere.

Sealing is normally performed using :

- **Silica water dispersions**
- **Refractory matter in water solution**
- **Fireclays and mixtures with condensed matter**
- **Gypsum water dispersions**
- **“Water Glass”**
- **Powdered refractory material**

Sealing of charging hole caps

SK Plus 2

There is an evident dusting difference between the traditional sealant (1) and the new type of inorganic polymeric combination (2)

“Water Glass” also may reduce dust formation, but with some inconvenients related to:

- Stability at lower temperatures
- Limited performance due to temperature difference between the cap and the frame
- High amounts necessary for optimal sealing
- Cap welding may occur
- Corrosive for eyes and skin



1) Water dispersion sealing



2) Modern type of sealing

Sealing of charging hole caps

SK Plus 2

The film formed few seconds after the application of the product, contains a special polymer which modifies the structure of the inorganic phase during the drying process.

This does not allow the formation of breathable dust, but only of a rigid film easily removable at the time of cap opening.

The presence of surface active agents modifies the surface tension of the sealing liquid, thus increasing the wetting properties and resulting in a more accurate and quicker distribution.



before treatment



after treatment

Sealing of charging hole caps

SK Plus 2



Sealing of charging hole caps

SK Plus 2

Advantages :

- Small quantities necessary for effective sealing (80–300 ml)
- No prior preparation required (ready to use)
- High sealing speed due to proper additives that fasten the performance
- Possibility to modify the formulation for optimal performance at particular temperature conditions registered at frame and cap
- Possibility to modify the rheological characteristic (gel sealant) to enhance the performance when there are high leakage from the charging hole caps due to their ovalization
- Avoids clogging and abrasion of automatic distribution equipment
- **Non-corrosive for eyes and skin**
- Low dusting with respect to traditional sealants

Sealing of coke oven doors

GP 7

Sealing of doors is of primary importance to keep safe working conditions and to control emissions in the atmosphere.

At present there have been very few trials to seal oven doors, none of which proved to be really effective:

- ➡ Suspended silica materials enriched with Chamotte
- ➡ Condensates
- ➡ Clays
- ➡ Silicon polymers

These kind of sealing originate hard to remove deposits over the frame, with a low seal efficiency (especially the first two).

Sealing of coke oven doors

GP 7



Sealing of a door with **heavy** emissions
using the new inorganic-polymeric sealant

Sealing of coke oven doors

GP 7



A precisely designed ratio between quality and quantity of refractory material and the polymer used to regulate the rheology of the dispersion result in:



- High adhesiveness on the surface
- Excellent sealing efficiency
- Extremely easy removal
- No residues between door and frame

Beaumont BMT 11/12

Gasket for the telescope of coal charging car

Beaumont BMT 11/12 is a **customized** ring –shaped sealing gasket, composed of a double layer of special high density and strength fireproof canvas (up to 1200 ° C) filled with a special kaowool paper.



Beaumont BMT 11/12 is applied to the base of the telescopic tubes of the coal charging car in order to prevent, during the charging phase, the escape of gas from the charging hole.

Beaumont BMT 11/12

Gasket for the telescope of coal charging car

Applications

Beaumont BMT 11/12, with its sealing action between the telescope and the charging hole, prevents the release of coke oven gas by breaking down more than 90% of gas leaks, decreasing the emission time from about 30 " up to 0-3 ".

Beaumont_BMT 11/12

Gasket for the telescope of coal charging car

Beaumont BMT 11/12 is installed / removed thanks to its release lock.

The materials guarantee :

1. **Duration and Resistance.** Over 50 boots with a single handwork.

2. **Sealing.** The kaowool paper padding ensures the required thickness and the right compressibility for a optimum adhesion as well in the presence of ovalization of the charging hole. In this way the gases do not have escape routes between the charging hole and the telescope.

Benefits



...summing up !

Beaumont Italia is able to provide a complete line of innovative products to enhance safety, environmental care and productivity of the cokery in a modern style.

- ✓ charging hole caps sealants **SK Plus 2**
- ✓ oven doors sealants **GP 7**
- ✓ gasket for the telescope **BMT 11/12**



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***The right blend
of science and creativity***