DUST SUPPRESSION PLANT

MAITEK®

Aggregates

Recycling

Industrial sands

PATENTED DUST SUPPRESSION SYSTEM
Principle of operating

There are various dust removal techniques that can be applied to crushing plants. The most used technique is dust extraction by means of a large-capacity vacuum fan which allows recovering suspended particles through a set of bag filters made of a special cloth. This quite costly operation entails adapting the installation by almost hermetically sealing all the moving parts, such as belts, screens, crushers, loading and unloading duct and, in most cases, resorting to plugging the machines and housing them in closed rooms.

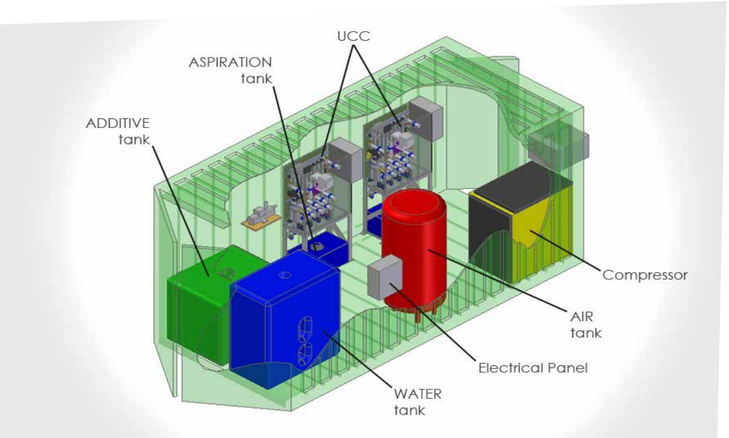
A more economical alternative is water sprinkling at the dust emission points. The systems used are generally very simple but very approximate in distribution. This make frequent clogging of the selection meshes: in order to avoid such drawback, the operator is forced to reduce water capacity and the effectiveness of dust suppression is decreased. We underline the fact that, in any case, great water quantities are necessary to get a reasonable result and this may produce an excessive humidification of the aggregate.

Our system is based on the sprinkling principle but with one innovative detail: production and distribution – by means of compressed air – of a foam made up of a mixture of water and an additive of biodegradable vegetal origin. Generating a large amount of micro foam bubbles, the surface area in contact with the dust particles is considerably increased in comparison with the contact capacity of normal drops of water, and a great deal less water is used.
This foam – a mixture of air, water and additive of vegetal origin – envelops the processed aggregate thus preventing the dust particles from propagating into the atmosphere and without changing the original properties of the material treated.

The result is the same but the water quantity is decidedly inferior.

Apart from the advantages of effective dust removal and contained water consumption, our dust suppression system is fully automatically controlled by a PLC in order to reduce water and additive consumption to a minimum and to modulate foam delivery to the various operating points. Through a material detection sensor and, if necessary, a movement sensor, can make the device operate fully independently, so that it interrupts delivery based on the effective need, thus avoiding the operator having to intervene each time the conditions change.

A further advantage is given by the fact that every single crushing machine is individually controlled by its proper device. This allows an optimal and targeted adjustment of the whole plant.



MDB - DUST SUPPRESSION PLANT equipped with/without box/container (using biodegradable additive)

Intended for dust removal in the mining industry and in crushing of aggregates coming from quarries, demolitions and recycling, our DUST SUPPRESSION SYSTEM is supplied for applications on complete plants as well as on individual machines, subject to prior on-site inspection to define the application most suitable for the specific plant. On request we supply complete plants installed in box/containers of various sizes, insulated for the use in extreme climatic conditions. The box/container is equipped with the control unit, pump, water and chemical tank, air tank, compressor, electric board, lighting and air conditioning. The customer has only to arrange the electrical and water connection from the outside. It is quick and easy to install on the site.

Models	Suitable for crushing plant (up to t/h)	Machines to be treated (numbers)	Power required (kW)	Water consumption (L/h)
MDB-1CC-1PS-5ZB	150	1	10	200
MDB-1CC-2PS-8ZB	200	2	12	350
MDB-1CC-2PS-13ZB	300	2	16	500
MDB-1CC-3PS-13ZB	350	3	16	600
MDB-1CC-4PS-16ZB	500	4	20	700

Ref. PICTURE : Ex. of dust suppression system equipped in box /container

APPLICATIONS

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MHP - HIGH PRESSURE DUST SUPPRESION PLANT (using only water)

For the reduction of dust in the hoppers of crushing plants, we provide high-pressure spray systems with instantaneous high water dispensing. The system is based on the creation of a water curtain that intercepts the lifting of dust at the time of unloading of trucks.
With the use of special nozzles, very small droplets of water are created. The nozzles are fixed to a manifold made of stainless steel. The manifold is inserted and protected in a robust steel profile. Each collector is connected to the pump unit by means of high-pressure pipes. The pump unit works with a water pressure of 60 to 110 bar. Fitting is fast and easy to implement. Upstream the pumps are fitted with very fine weft filters to prevent any occlusion of the sprayers.
Spraying activation is made with either photoelectric cells or optional sonar or remote control supplied to truck drivers.

Models	Suitable for hopper (up to m³)	Necessary nozzles (numbers)	Power required (kW)	Water consumption (L/min)
MHP-20	20	12	2,2	12
MHP-50	50	18	2x3	20
MHP-80	80	36	3x3	40

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