EcoDryScrubber

EFFICIENCY THROUGH DRY SEPARATION
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The Dürr EcoDryScrubber has revolutionized the separation of paint overspray: The Dürr EcoDryScrubber is the world’s most successful technology for dry separation with limestone powder as a binding material. It combines high performance with massive energy and resource savings in painting, the most energy-intensive process of vehicle production.

**EcoDryScrubber** stands for:
- 60% lower energy costs in the spray booth, of which there is
  - 80% less heat consumption
  - 50% less power consumption
  - 80% less water consumption for supply air conditioning, compared to traditional wet separation.

**EcoDryScrubber** uses limestone powder as a natural binding material for all paint types of paint overspray. The use of water and detackifier chemicals and disposal of paint sludge is eliminated.

Highest painting standards – worldwide

Not only is the up to 95% air recirculation in the spray booth the key to energy savings, but also to a globally stable process and consistently high application quality. Whether the plant operates in India at 35 °C with high humidity or in Russia at -20 °C with dry air, it hardly makes a difference. Temperature and humidity in the paint application process can be held constant without effort. The process is nearly independent of the climate.
The EcoDryScrubber combines environmental, quality and cost aspects into an attractive overall concept.

Everything for environmental protection and sustainability
» No coagulating chemicals or biocides
» No water to bond paint
» No unpleasant odors
» No admission restrictions
» No paint sludge
» Extremely low particle emissions (HEPA 12, nearly 100% filtration)
» Reduced CO₂ emissions

A proven technology for efficient processes
» One binding material for all types of paint overspray
» Robust and fully automated system
» Smaller supply air units, air ducts and supply systems
» Reliable, hygienic air recirculation system
» Consistent application quality
» Clean conduit systems without paint sedimentation
» Installation and commissioning in the shortest time
» Climate independent

Efficiency in facts and figures
» Nearly 60% of the energy required in a paint shop goes to demands of the spray booth and its workspaces.
DRY SEPARATION:
AN EFFICIENT PROCESS

Material efficiency:
A binding material for all paints

One of the greatest strengths of the EcoDryScrubber is its universal applicability:

The limestone powder binds all paint types of paint overspray applied in the spray booth. Unlike with wet separation, neither an ongoing control process nor an adaptation to the chemicals used with the utilized paints is necessary. At the same time the process needs no water.

Process efficiency for the highest exhaust air quality

Air filters with Teflon membranes are processes optimized and regenerate automatically. Therefore, during operation the system achieves a residual dust content of less than 0.1 mg/m³ in the clean air duct. This nearly 100% filtration allows direct recirculation of the process air without the use of other filter stages.

Energy efficiency par excellence

60% of the energy consumed in a paint shop is for the processes in the spray booth and their workspaces. Much of this in turn is used for the conditioning of the air. This is where the EcoDryScrubber comes in: The high air recirculation of up to 95% is the core of the massive energy savings that are made possible by the EcoDryScrubber. At a production volume of 160,000 car bodies in total, 16 million kilowatt hours of energy can be saved with the EcoDryScrubber. This corresponds to a reduction of 5,200 tons in CO₂ emissions, or enough electricity to supply 3,000 households per year.

The paint overspray combines with the limestone powder and is deposited on the filter.

After reaching a defined filter differential pressure, the filter cake from the overspray and limestone powder is blown off and falls downward.

Direct recirculation of the cleaned air stream.
The paint overspray enters the filter module from the application area via air flow.

Limestone powder is stirred up about every 30 seconds. It is deposited onto the filters and protects them from bonding with paint.

The saturated limestone powder is automatically drawn out of the unit and the limestone powder container is automatically refilled.

An EcoDryScrubber module filter (at the bottom) consists of a hopper with limestone powder, the filter elements above it and the clean air duct.
The EcoDryScrubber is considered a key technology in our EcoPaintshop shop concept. For us, in terms of efficient production this means continuous further development of our products and solutions with regard to the painting process. To achieve this we take all aspects of efficiency, such as energy, flexibility and material into consideration. The result: An excellent innovation.

EcoDryScrubber has received several awards for its positive record regarding environmental friendliness and profitability.
REUTILIZATION AND ENERGY RECOVERY

Assured quality worldwide

The limestone powder used for the binding of the paint overspray was specified by Dürr especially for the implementation of the EcoDryScrubber in automated production systems.

A close-knit quality management system and partner network ensures quality, cost-orientation and supply worldwide – no matter where the respective production line is located.

Easy supply and disposal

The supply of limestone powder is carried out by silo trucks and filled directly at the silos. The saturated limestone powder is also stored in silos. The silos can be used for the supply and disposal of several lines. The supply and disposal of limestone powder between hopper modules and silos occurs automatically in a self-enclosed system.

As an alternative to the silos, material handling can be also realized with big bags.

Recycling at “its best”

The paint-saturated limestone powder can also be used in other production processes such as the cement industry.

The bound overspray is used for energy generation and the limestone powder is subsequently processed directly as a raw material in the cement industry.

This not only has a positive effect on the environment, but also on the operator’s annual profit.

EcoDryScrubber – The advantages:

» Energy reduction by 60% in the spray booth
» CO₂ reduction by 50% in the spray booth
» Limestone powder as a natural binding material for all types of paint overspray
» Water and chemical free process
» Nearly 100% air filtration quality
» Nearly climate-independent process

» Fully automatic paint supply
» Simplified accessibility concept for the paint booth
» No paint sludge
» No high voltage needed
» Lower noise levels
» No unpleasant odor
» No paint particles in the spray booth exhaust
Dürr – Leading in Production Efficiency

Four divisions, one goal: maximum production efficiency for our customers

» **Paint and Assembly Systems**: Paint shops and final assembly plants for the automotive industry and aerospace construction
» **Application Technology**: Robot and application technology for applying paint, adhesives and sealants
» **Measuring and Process Systems**: Balancing technology, cleaning and surface processing technology as well as testing, filling and assembly products
» **Clean Technology Systems**: Exhaust air purification systems, energy efficiency technologies

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