

To whom it may concern

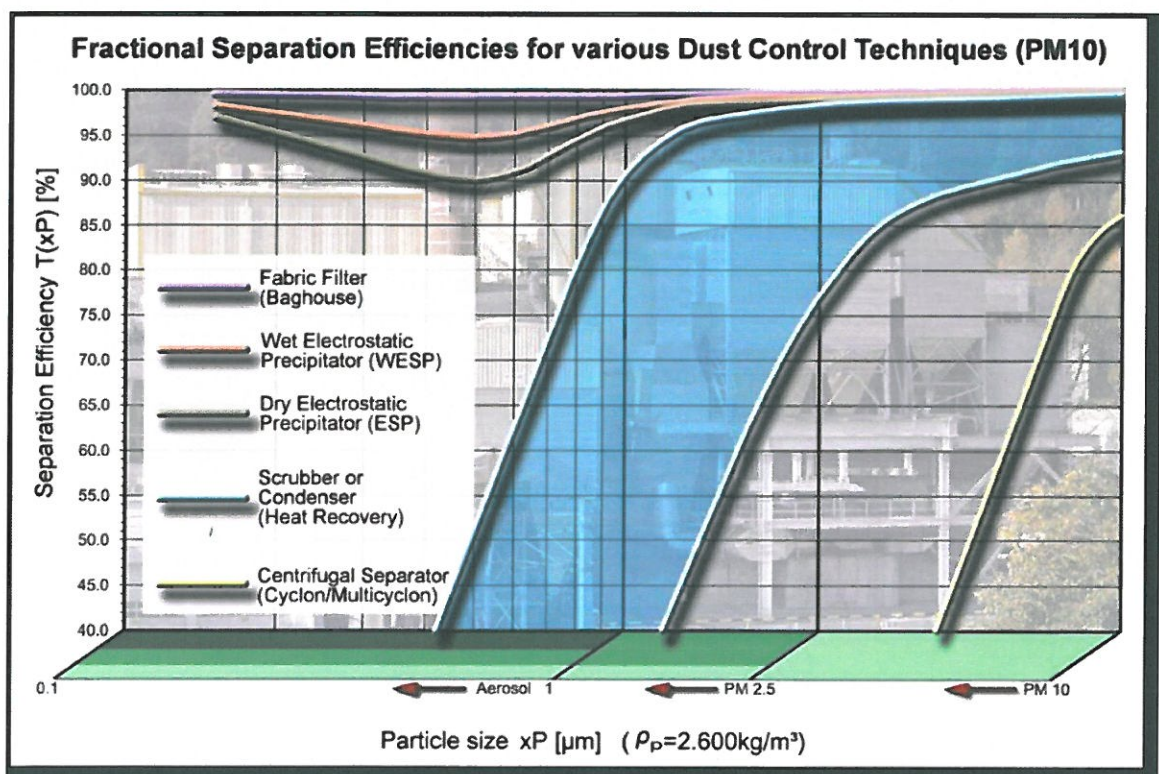
STATE OF THE ART AIR POLLUTION CONTROL SYSTEM FOR DRIERS AND PRESSES IN THE WOOD BASED PANEL INDUSTRY

WET ELECTROSTATIC PRECIPITATOR FOR PB DRIER INCLUDING EMISSIONS FROM THE PRESS

Wet Electrostatic precipitators (WESP) are state of the art technology for cleaning emissions from driers and presses in the wood based panel industry.

The main purpose of a WESP is to remove particulate matter (PM) and consequently blue haze emissions, as blue haze (caused by aerosols) behaves like particulate matter.

The performance of a WESP on PM is best for particle sizes smaller than 0,2 μm and larger than 1 μm , and has a through in the range between 0,2 to 1 μm (see diagram below).



Whe

Typical emission limits for particulate matter (PM) for direct heated wood particle driers are in the range of 25 to 50 mg/Nm³dry*. Inlet concentrations typically range between 300 and 700 mg/Nm³dry. The WESP needs to be sized accordingly to constantly meet these requirements.

Other very positive side effects of WESPs are, that heavy metals as well as PCDD/F are efficiently reduced as these substances are either particle bound or condensed at temperatures below 70°, and therefore behave as particulate, which can be efficiently removed.

PRESS SCRUBBER FOR MDF PRESS EMISSIONS (*MEDIUM DENSITY FIBERBOARD*)

Summary of emission measurements from various Press scrubbers (all MDF) show following results.

Formaldehyde	35 - 50 mg/Nm ³ dry
Methanol	30 - 100 mg/Nm ³ dry
VOC	40 - 70 mg/Nm ³ wet (Method 25A –Flame ionization detector)
PM	30 - 50 mg/Nm ³ dry - by installing a WESP, PM emissions may be further reduced to below 15 or 10 mg/Nm ³ dry.
Temp.	30 - 35°C, 100% relative humidity

In addition to that also some acetaldehyde, organic acids, paraffin, and other organic substances (some of these substances can be detected with a flame ionization detector - VOC) can be found. Acetaldehyde, acetic and formic acid, phenols are typically below 15 mg/Nm³dry.

** Please note, that these numbers do not represent the requirements for the USA, as there regenerative thermal oxidizers would be state of the art technology, with a WESP for precleaning.*

Clean gas values are related to the same oxygen concentration as the crude gas values (no reference oxygen).

N..... Normal conditions refer to 0°C and 101,325 Pa.

EMISSIONS AFTER PB PRESS SCRUBBERS (*PARTICLE BOARD*)

Emission Concentrations of press scrubbers for particle board (PB) production are typically up to 20% lower compared to scrubbers installed at MDF presses.

Formaldehyde	20 - 40 mg/Nm ³ dry
Methanol	30 - 80 mg/Nm ³ dry
VOC	30 - 65 mg/Nm ³ wet (Method 25A –Flame ionization detector)
PM	25 - 40 mg/Nm ³ dry - by installing a WESP, PM emissions may be further reduced to below 15 or 10 mg/Nm ³ dry.
Temp.	30 - 35°C, 100% relative humidity

METHODS

PM	USEPA method 5 or EN 13284-1
VOC	USEPA method 25A or EN 12 619
Formaldehyde	NCASI 98.01 or VDI 3862 Sheet 2 or sheet 6,

scheuch
TECHNOLOGY FOR CLEAN AIR
Scheuch GmbH, A-4971 Auroldmünster
Weierfing 68, Phone: +43-7752-905-0, Fax: -65000



Ing. Mag. MBA Thomas Kreuzhuber

Auroldmünster, August 5th, 2016

Head of Sales Panels Industry

Phone ++43 7752 905 5257

e-mail: t.kreuzhuber@scheuch.com

Scheuch GmbH