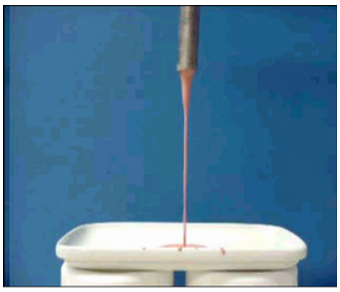
Case study: Drying inorganic pigments

Application:
Ultra marine blue and violet in-organic pigments are used to colour fibres for the automotive and clothing industry. Critical in the extrusion of the coloured polymers is the extrusion pressure (must be low) and the moisture content of the pigment powder has to be as low as possible. The extrusion pressure is related to the fineness of the dry powder. Also important is the colour strength of the pigment powder.

The **present production lines for ultra fine consists of centrifuges + fluidised paddle dryer + mill**

Hosokawa Micron solution combines a centrifuge with a **Micron Dryer, MDV-2.**



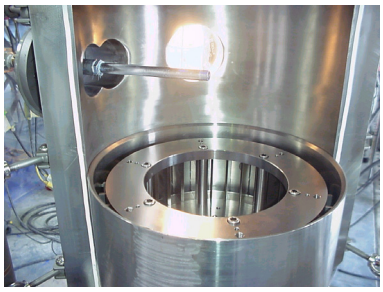
Requirements product

Moisture content	:	< 1% W.B. for blue < 0.1% W.B. for violet
Extrusion pressure*	:	< 50 bar/kg (∆p)
Particle size distribution	:	no agglomerates with 100% < 45 µm
Colour strength	:	high as possible which require elevated temperature

Solution:
The pigment pastes are very viscous and have a sticking nature. For a powerful dispersion of such feed material a **Drymeister (DMR) with multi-blade rotor and high speed classifier give a very fine particle size distribution and a dry and uniform product.**
The controlled high outlet temperature at 175°C ensures a high colour strength.

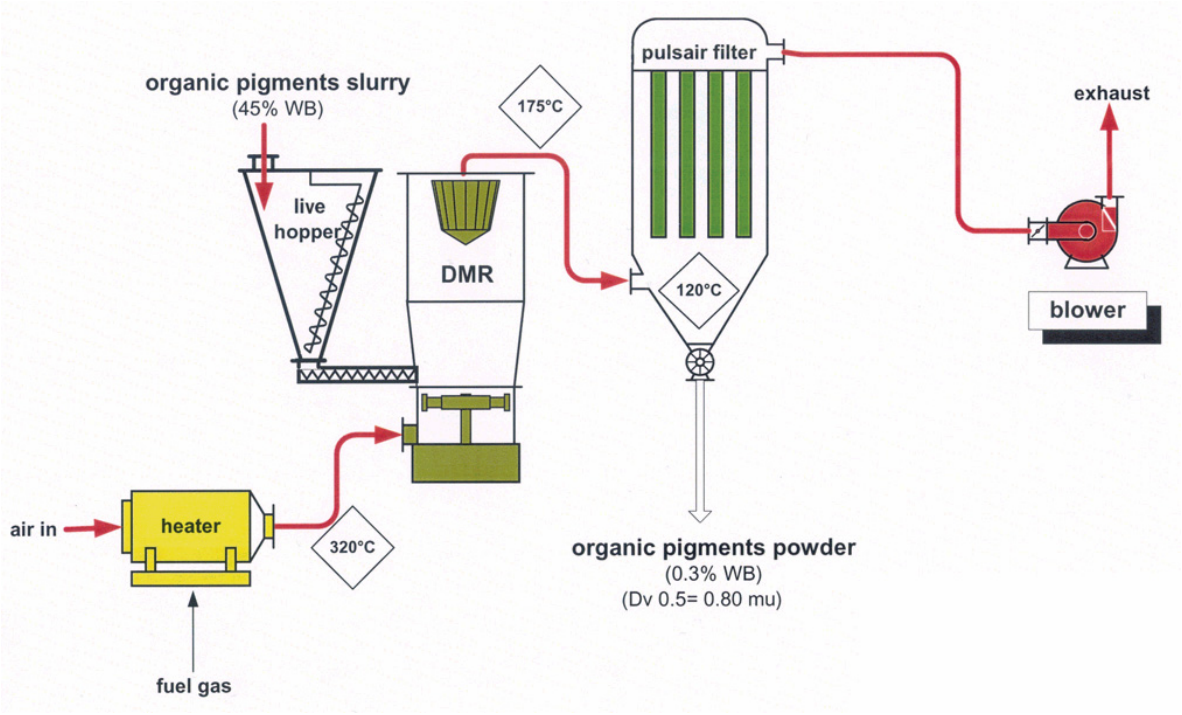
Process data

Feed capacity	:	150 kg/hr
Feed moisture content	:	45% W.B.
Product moisture content	:	0.3% W.B.
Inlet air temperature	:	420°C
Outlet air temperature	:	175°C
Particle size distribution	:	DV 0.5 = 0.8µm



Detail of high speed dispersion rotor

Typical flow sheet of Micron Drying System for in-organic pigments



Compact plant set up

Conclusion
The DMR is a **reliable machine for drying sticky inorganic pigment pastes.**
It is a **very stable process resulting in a very fine and dry product in a one step process.**