

T TECNOLOGIA MECCANICA

fluid jet micronizers

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Check List Sheet

Introduction

The micronizing plant is composed by a series of interconnected parts which purpose is to process a dry powder in order to obtain a very fine granulometry and at same time a very narrow Particle Size Distribution. The raw material is introduced into the system by a hopper, and is fed across a feeding unit (screw type) toward the jet-mill. The compressed gas, provided by a compressor is controlled by a control cabinet in order to have the correct process parameters for the micronization. The core of the process is the fluid jet mill, into which by using compressed gas jets the powder collides and is classified. The dust is introduced into the mill by a Venturi system, connected to the feeder by a silencer unit, that also provide a reducing on noise production. The micronized product, dispersed into the gas stream exiting from the mill, is conveyed and treated on a cyclone filter unit provided with special filtering media activated by a pneumatic shaking system. The production is collected by a conveying system inside the cyclone filter itself, while the filtered exhaust process gas is expulsed through an high efficiency particle treatment. The plant is controlled by an electric installation that is composed by a local interface and a remote cabinet, a series of detectors are installed for control and safety reasons.



It is important to underline that the plant performances depend strongly on the processed powder (entry granulometry, entry PSD, product rheology, amorphous form, hardness, particle shape, moisture content, etc.) so the purpose of this document is to collect as much as possible data in order to correctly dimension your machine or your micronization process line.

In the next sheets you will be requested to fill in an input data sheet with information about the following relevant arguments:

- MATERIAL NATURE AND RHEOLOGY
- INPUT PARTICLE SIZE DISTRIBUTION
- OUTPUT PARTICLE SIZE DISTRIBUTION
- PRODUCTIVITY
- INSTALLATION AREA AND UTILITIES
- PLANNING FOR TRIAL AND PRODUCTION

Input Data

_____ MATERIAL NATURE AND RHEOLOGY _____

- Material Profile/Characteristics - (Chemical Analysis)
what is your material ?
Apparent density of the product ?
Is the product abrasive/sticky/crusting ?
What about product flow ability ?
Please provide as much information as you can.
- Abrasiveness
mild (Mohs scale 1-2) =
medium (Mohs scale 3-4) =
hard (Mohs scale 5-10) =
- Moisture Content (humidity)
by weight = %
- Solvent Content
will you use solvents ?
What kind ?
Cleaning procedure ?
Residual solvent content by Part Per Million =
- Temperature Sensitive?
No
yes, softening temperature degrees °F or °C
- Dangers
product activity (OEL)
explosion risks if aware (ST0, ST1, ST2, ST3)
- New Chemical Entities, New Molecules
toxic grade
melting point, (>80°C or ...)
flash point
crystal structure shape, (needle or long or round or ...)

_____ INPUT PARTICLE SIZE DISTRIBUTION _____

- What is the feed (starting) size of your material ?
D100 < micrometer
d99 < micrometer
d95 < micrometer
d90 < micrometer
d50 < micrometer

percent less than 1000 micrometer = %
percent less than 500 micrometer = %
percent less than 400 micrometer = %
percent less than 300 micrometer = %
percent less than 150 micrometer = %
percent less than 45 micrometer = %
percent less than 25 micrometer = %
percent less than 10 micrometer = %
percent less than 5 micrometer = %

OUTPUT PARTICLE SIZE DISTRIBUTION

- What final product size are you looking for ?

D100 < micrometer

d99 < micrometer

d95 < micrometer

d90 < micrometer

d50 < micrometer

percent less than 300 micrometer = %

percent less than 150 micrometer = %

percent less than 45 micrometer = %

percent less than 25 micrometer = %

percent less than 10 micrometer = %

percent less than 5 micrometer = %

percent less than 1 micrometer = %

PRODUCTIVITY

- What capacity per hour (feed rate) do you require ?
- Volume of single Batch ?
- Multipurpose or Product dedicated unit ?

INSTALLATION AREA AND UTILITIES

- Installation zone classification
for gas, zone 0 - 1 - 2
for dust, zone 20 - 21 - 22

- Process gas availability
nature = (air, nitrogen, or ...)
pressure = bar
flow rate = m³/min

- Electrical characteristics
power supply configuration
V
Hz

- Clean room availability
description

- Cleaning utilities
description

- Special requests

____PLANNING FOR TRIAL AND PRODUCTION____

- If you want to schedule a trial run (test) in one of our pilot plant machines, how soon do you need the test run ?

1 month

3 months

6 months

Other

- How soon do you need to be in production ?

3 months

6 months

12 months

Other

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The manufacturer reserves the right to modify specifications without prior notice.