



Application Guide: Air Treatment
Spray Drying
Quantum

Benefits:

- Consistent year-round production
- Consistent powder quality
- Reduced production stops
- Bactericidal & fungicidal certified
- No need to pre-cool
- Energy efficient
- Production increase 15 - 20%

Increased productivity in for spray dryers

In the operation of spray drying towers there are seasonal variations in their operation.

In summer, when the moisture content in the air is high, the operating conditions are less advantageous than in winter, when the water content in the air is low. In humid conditions there is a greater tendency for the powder to become sticky and cause more downtime.

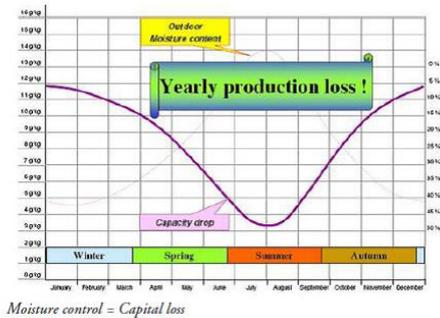
Obtaining stability and achieving a consistent quality output is desired in the spray drying

process. To do this it is necessary to stabilise all the parameters of the operation. However the one parameter which until now has been difficult to control is the moisture content of the incoming air.

Dehumidifying the incoming air enables the air to maintain the same low moisture content throughout the year, providing stable inlet conditions, enabling consistent quality and increased performance from the spray drying

process. Munters have developed a range of special high performance dehumidifiers which enable this to happen. Munters dehumidifiers control precisely the moisture content of the incoming air giving the following advantages to the spray drying process:

Consistent production all year - production is no longer affected by outside conditions. This means no more production stops in summer due to weather conditions.



Having stable production conditions assists the operators work by reducing the need for frequent parameter adjustments.

Having stable drying conditions means consistent powder quality.

Having dry inlet air enables increased production from the process.

Less product sticking to the wall of the spray tower so less water cleaning time.

Munters Quantum™ Desiccant Rotor enables a large dehumidification capacity to be created, i.e. to achieve a low process air moisture content using only a single step, so eliminating the need to pre-cool.

In many industries drying is based on conventional heat and vent, this has one common harmful drawback: The drying process affects quality due to outdoor climate and seasonal variations.

a huge quantity of water in the spray tower. For example an air outdoor condition of 25°C @ RH 61% => 12g/kg and an airflow of 100,000 kg/h air. Then 1200 l water/h is introduced into the spray tower.

With Munters Quantum™ rotor, we are much more efficient. An air outdoor condition of 25°C and RH 61% (12g/kg) passed through Munters system provides process air 64°C and 2.0g/kg and an air flow 100,000 kg/h, so only 200 l/h of water is introduced to the spray tower.



A saving of 1000 l/h or water! With 1000 l/h less water introduced into the tower and a 55% slurry, a production increase equal to 29 tonnes of extra powder can be produced in one summer day alone.



With Munters Quantum™ technology, applications such as spray drying benefit in a reduction of absolute moisture content whilst increasing the process air temperature.

As shown above incorporating a Munters desiccant dehumidification can improve the performance of the spray drying operation.

The Munters system has other advantages. The moisture in the incoming air is absorbed by a desiccant rotor. The air coming off the dehumidifier system can be controlled to the desired moisture content. As the process is exothermic the temperature difference is dependent on the amount of moisture removed but can be up to 50°C which means the spray dryer heater has less work to do to achieve its temperature of the entering air into the chamber.

Munters Quantum™ rotor means less consumption of expensive power and lower CO₂ emissions. With Munters Quantum™ typical heating energy savings are 15 - 20%, with production increases from 15-20%. With summer conditions, outdoor air introduces

The Quantum™ rotor runs dry and hygienic due to no condensate in the system and is certified bactericidal and fungicidal.



Australia Phone +61 2 8843 1588, dh.info@munters.com.au Austria Phone +43 1 6164298-92-51, luftentfeuchtung@munters.at Belgium Phone +32 1528 5611, info@muntersbelgium.be Brazil Phone +55 41 3317 5050, munters@com.br Canada Phone +1 905 564 6466, dhinfo@munters.com China Phone +86 10 8048 3493, info@munters.com.cn Czech Republic Phone +420 775 569 657, info@munters-odvlhcovani.cz Denmark Phone +45 4495 3355, info@munters.dk Finland Phone +358 20 776 8230, laitemyynit@munters.fi France Phone +33 1 3411 5757, dh@munters.fr Germany Phone +49 4087 96900, mgd@munters.de India Phone +91 20 668 18 900, info@munters.in Italy Phone +39 0183 52 11, marketing@munters.it Japan Phone +81 3 5970 0021, mkk@munters.co.jp Korea +82 2761 8701, munters@munters.co.kr Mexico Phone +52 81 8262 5400, munters@munters.com.mx Netherlands Phone +31 172 433231, vochtbeheersing@munters.nl Poland Phone +48 58305 3517, dh@munters.pl Singapore Phone +65 6744 6828, info@munters.com.sg South Africa Phone +27 11 997 2000, info@munters.co.za Spain Phone +34 91 640 09 02, marketing@munters.es Sweden Phone +46 8 626 63 00, avfuktning@munters.se Switzerland Phone +41 52 343 8886, info.dh@munters.ch Thailand Phone +66 2642 2670, info@munters.co.th Turkey Phone +90 262 751 3750, info@muntersform.com UAE +971 4 8809295, middle.east@munters.com United Kingdom Phone +44 1480 432 243, dryair@munters.co.uk USA Phone +1 978 241 1100, dhinfo@munters.com Vietnam Phone +84 8 8256 838, vietnam@muntersasia.com

Your local office