Detergent Powder Processing

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Spray Drying

- Spray drying is the most important process used in the manufacture of detergent granules.
- It is the process route by which the main component of the vast majority of granular products is produced and the spray dried powder properties dominate the physical characteristics of the product.

Spray Drying

- The detergent spray drying process itself is well established.
- Over the years, the process has been optimized considerably.
- The production rate of individual units has also increased quite dramatically as limits are understood and overcome by interventions such as air flow modifications and multilevel spraying.
- Rates of over 80 t/h are now achieved in single spray drying towers today, although smaller tower rates can be as low as 1 t/h.

Spray Drying

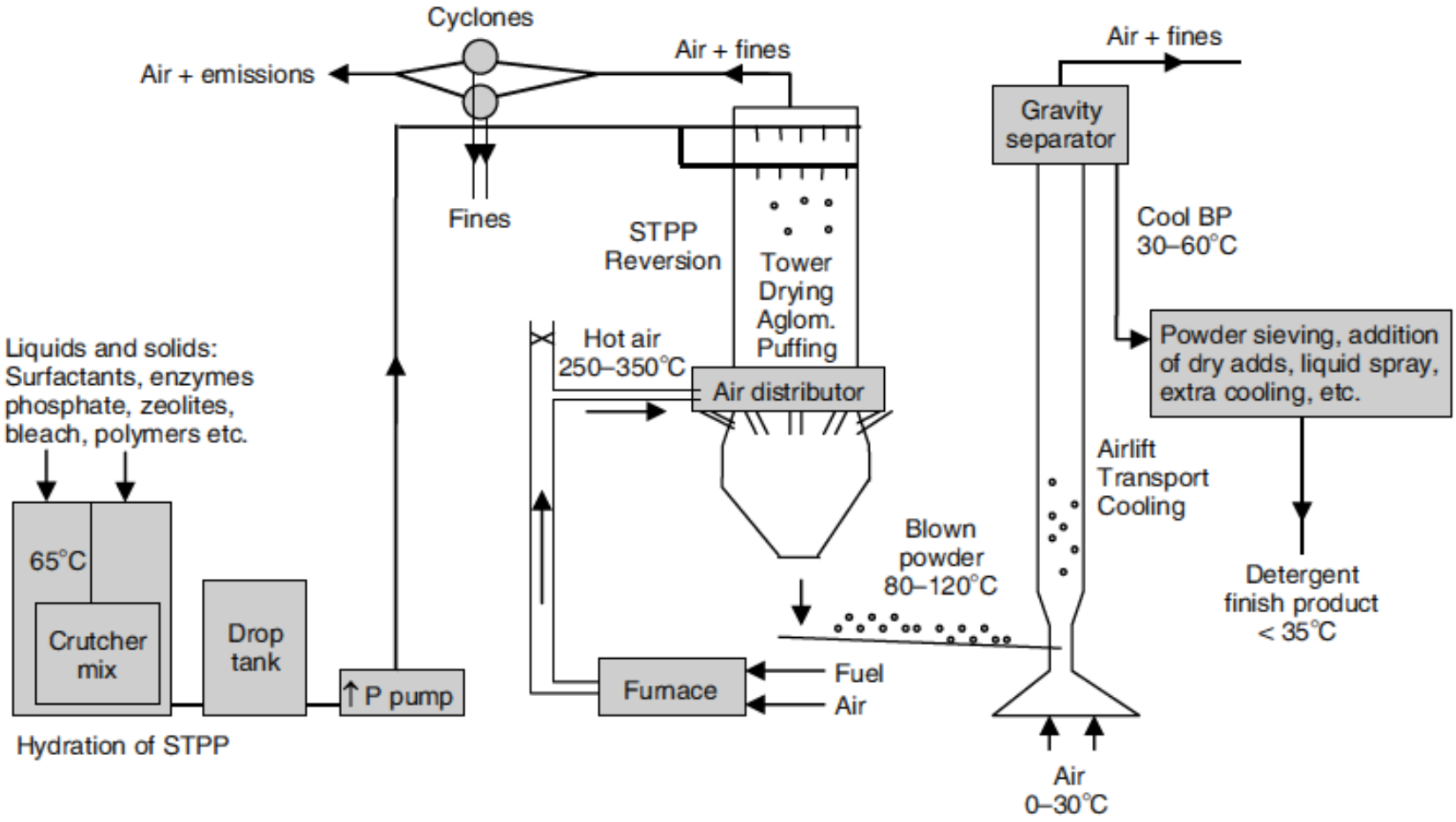
A typical manufacturing unit for spray dried detergent powders.

Spray Drying

Process Description

- The spray drying process enables efficient, counter-current, contact of an atomized detergent slurry with hot air, producing a detergent granule.
- The process itself can be split into five sequential operations.

Spray Drying

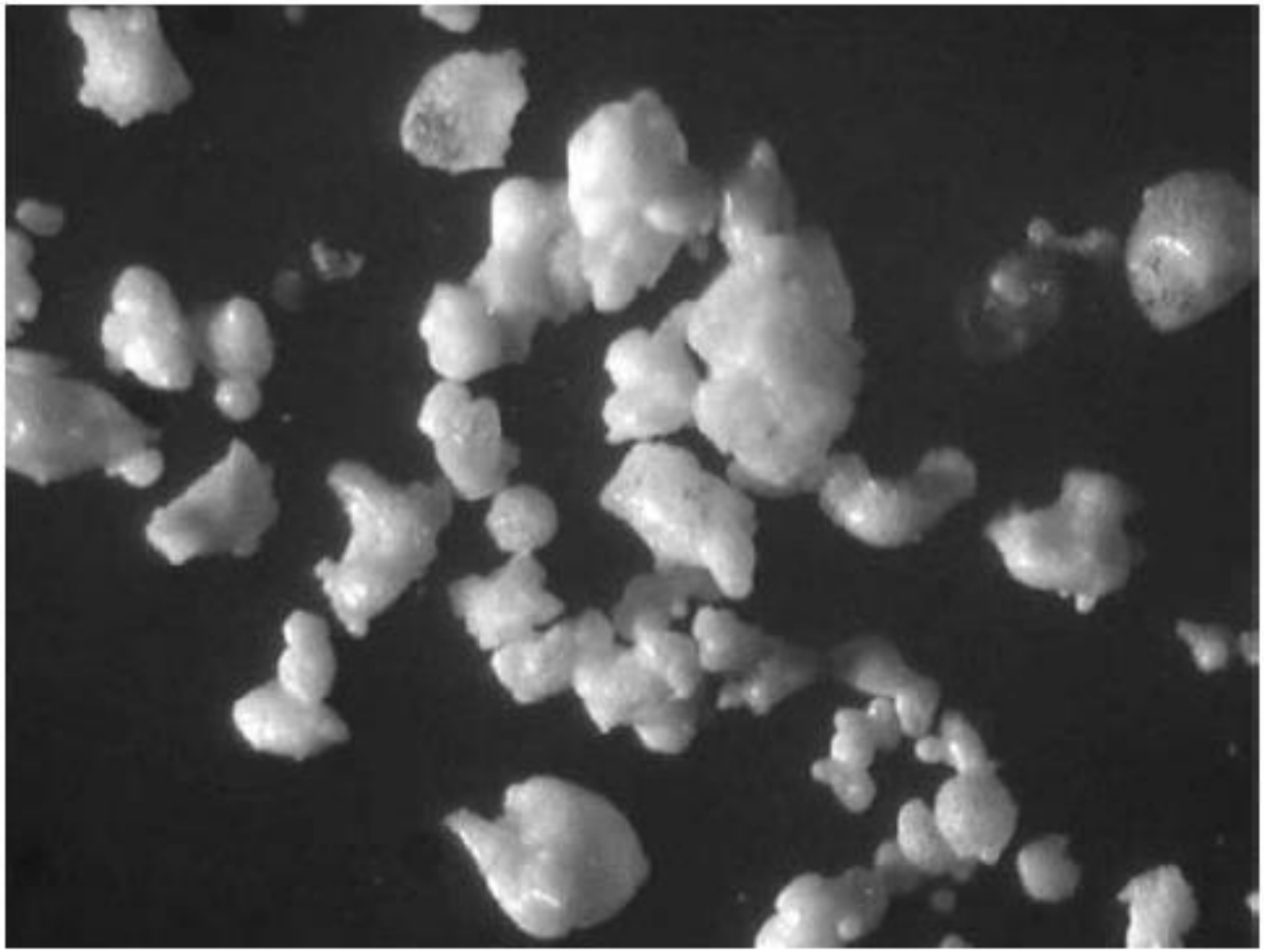


Spray Drying

The process itself can be split into five sequential operations.

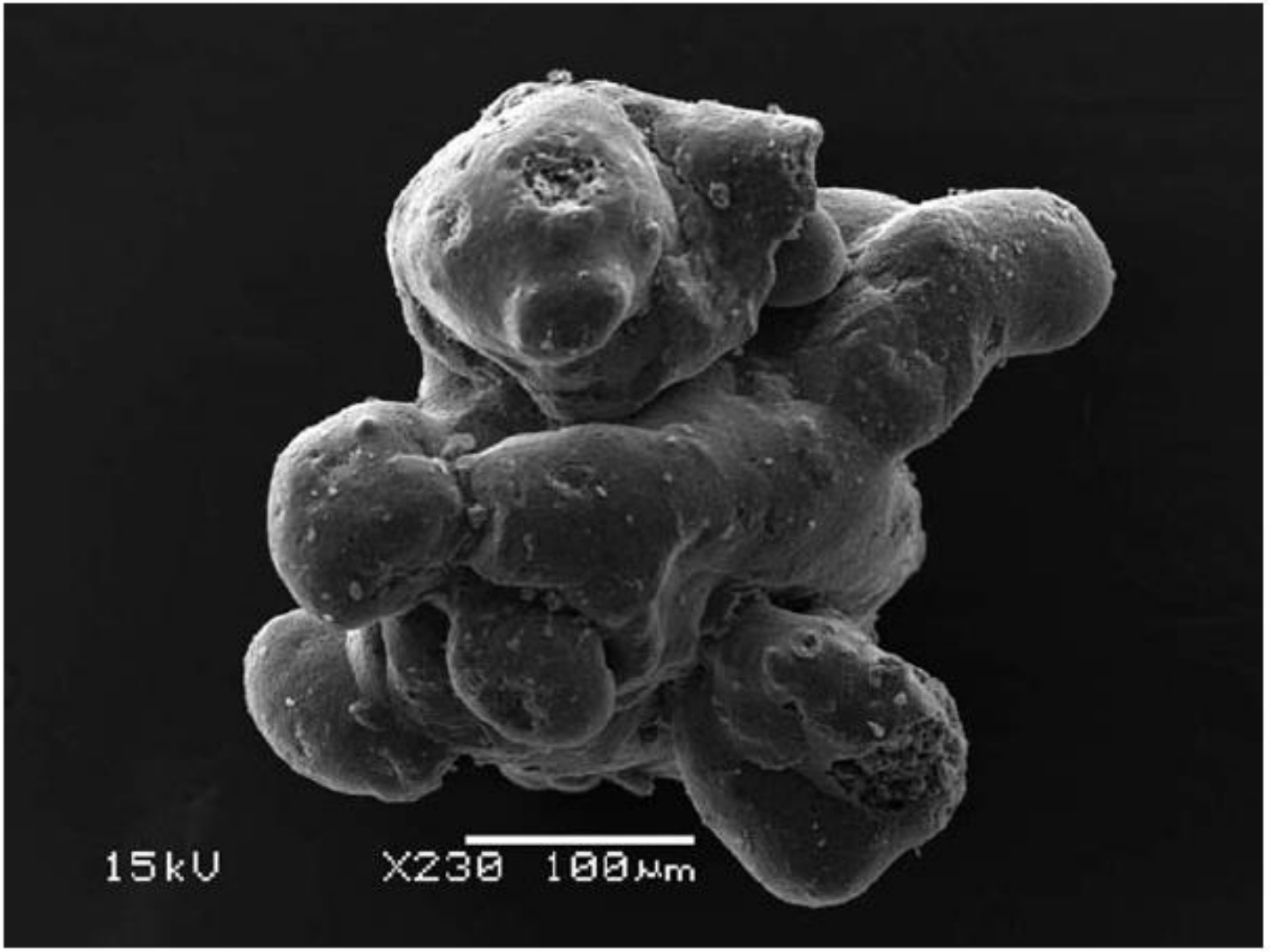
- **Slurry making**
- **Pumping**
- **Atomization**
- **Drying**
- **Cooling and classification**

Spray Drying



Typical spray dried detergent particles.

Spray Drying



19.10 Spray dried particle showing typical agglomeration.