Tablet Coating

Tablet coating in general

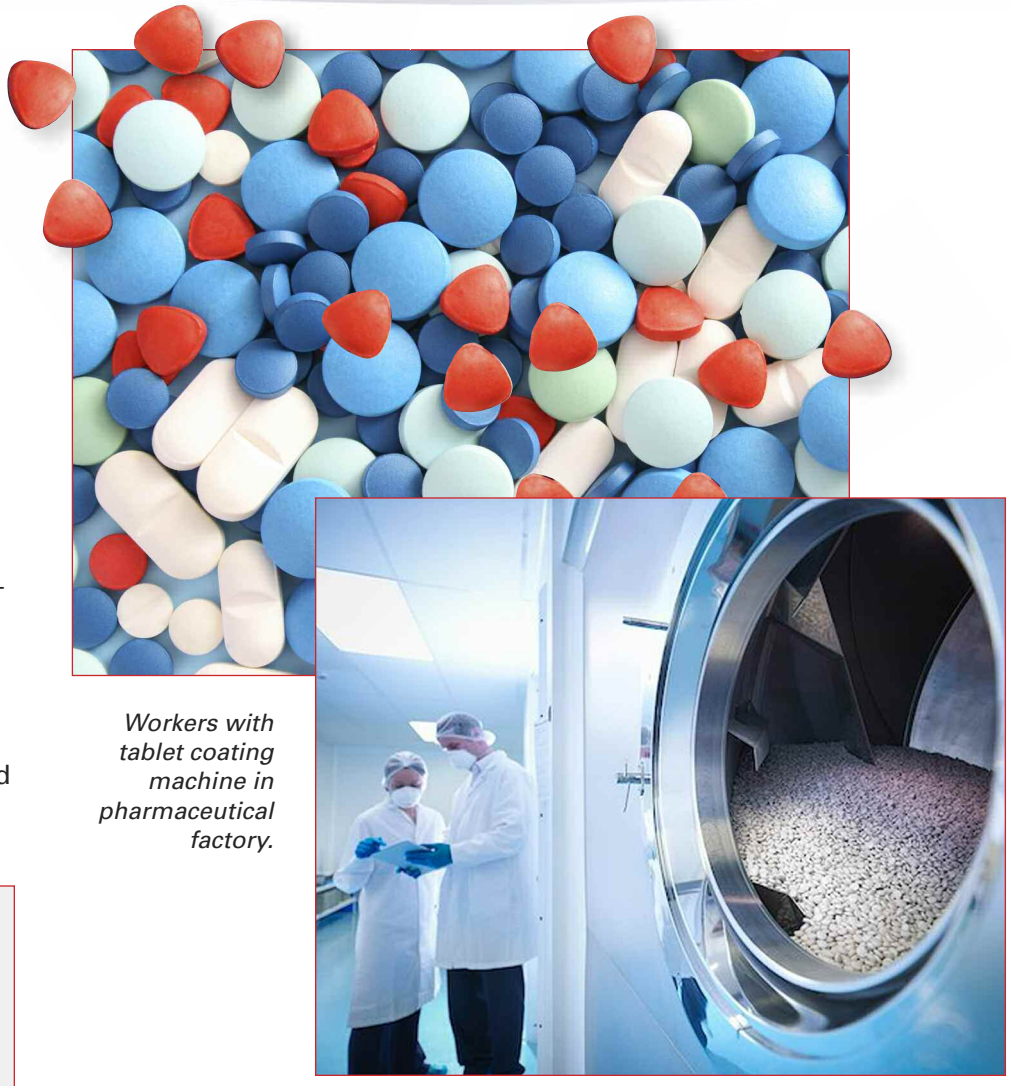
Pharmaceutical tablet coating involves the application of a coating composition to a moving bed of tablets with the use of heated air to facilitate the evaporation of the solvent. Several different types of coating are typically used.

Sugar-coated tablets are coated with a colored or an uncolored sugar layer. The coating is water soluble and quickly dissolves after swallowing. The sugar-coating protects the encapsulated drug from the environment and provides a barrier to objectionable tablet taste or odor.

Film-coated tablets are compressed tablets coated with a thin layer of a polymer that forms a skin-like film. The film is usually colored and has the advantage over sugar coatings that it is more durable, less bulky, and works faster at the desired location in the gastrointestinal tract.

Enteric-coated tablets are designed for delayed release effects. They are designed to pass unchanged through the stomach to the intestines, where the tablets disintegrate and allow the drug to dissolve and start its effect. Enteric coatings are used when the drug substance itself would be destroyed by gastric acid or is irritating to the gastric mucosa.

continued



Workers with tablet coating machine in pharmaceutical factory.

Facts & Figures

- Aspirin is one of the most commonly used drugs in the world with approximately 35,000 metric tons produced annually; enough to make over 100 billion aspirin tablets.
- The global generic medicines market is worth over US$ 80 billion, about 30% of total sales, and is much larger than the commonly reported market in unbranded generics alone.
- The USA is the largest pharmaceutical market in the world accounting for about 53% of the world wide consumption.

Why the need to measure humidity?

Environmental control is the practice of managing the temperature, humidity, air circulation, ventilation and air pressure of a given space. Within certain types of pharmaceutical manufacturing processes, precise environmental control can help limit inefficiencies and other potential problems.

Pharmaceutical tablet coating is one such application. Inefficiencies during the coating process may result in contamination and tablet impurity in the form of tablet-to-tablet color variation, surface pitting from over-wetting, twinning due to spray drying, cracking or peeling. Most of these problems can be overcome by better control of the environment within the process. Over-wetting, for example, occurs when the coating hits the still wet tablet surface and the surrounding air does not dry it quickly enough. Another example of ineffective humidity and temperature control is seen in the spray drying application. If the tablet coating hits the tablet surface after the moisture has been removed, the result is usually poor adhesion of the coating.

Incorrect cooling and drying of the sugar solution in the sugar coating process may often result in a rough, translucent and uneven coating.

Because the required environment for a perfect coating strongly depends on the composition of the tablets, many pharmaceutical manufacturers employ scientists who perform experiments to determine the ideal coating procedure. These experiments and the resulting procedures typically include monitoring and controlling temperature and humidity levels. Once these specific requirements are determined, the set-points can be configured at the controller to enable the precision tablet-coating machines to work at optimal performance.

Tablet Coating Benefits

- Covers the unpleasant taste, odor and color
- Provides physical and chemical protection for the medicine (light, moisture and air)
- Controls the release of a drug (enteric coating)
- Improves the appearance of tablets
- Makes it easier to swallow the tablets
- Facilitates the identification of a particular drug

135 Engineers Road, Hauppauge, NY 11788
Tel. 631-427-3898 • Fax. 631-427-3902 • info@rotronic-usa.com

rotronic MEASUREMENT SOLUTIONS