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# Design of dosage forms

Peter York

CHAPTER CONTENTS



## Principles of dosage form design

Drugs are rarely administered as pure chemical substances alone and are almost always given as formulated preparations or medicines. These can vary from relatively simple solutions to complex drug delivery systems through the use of appropriate additives or excipients in the formulations. The excipients provide varied and specialized pharmaceutical functions. It is the formulation additives that, amongst other things, solubilize, suspend, thicken, preserve, emulsify, modify dissolution, improve the compactability and flavour drug substances to form various medicines or dosage forms.

The principal objective of dosage form design is to achieve a predictable therapeutic response to a drug included in a formulation which is capable of large-scale manufacture with reproducible product quality. To ensure product quality, numerous features are required: chemical and physical stability, with suitable preservation against microbial contamination if appropriate, uniformity of dose of drug, acceptability to users, including both prescriber and patient, as well as suitable packaging and labelling. Ideally, dosage forms should also be independent of patient-to-patient variation, although in practice, this feature remains difficult to achieve. However, recent developments are beginning to accommodate this requirement. These include drug delivery systems that rely on the specific metabolic activity of individual patients and implants that respond, for example, to externally applied sound or magnetic fields to trigger a drug delivery function.