

KeyPoints

Advantages and disadvantages of emulsions as dosage forms

Advantages

- Unpalatable oils can be administered in palatable form.
- Unpalatable oil-soluble drugs can be administered in palatable form.
- The aqueous phase is easily flavoured.
- The oily sensation is easily removed.
- The rate of absorption is increased.
- It is possible to include two incompatible ingredients, one in each phase of the emulsion.

Disadvantages

- Preparation needs to be shaken well before use.
- A measuring device is needed for administration.
- A degree of technical accuracy is needed to measure a dose.
- Storage conditions may affect stability.
- Bulky, difficult to transport and prone to container breakages.
- Liable to microbial contamination which can lead to cracking.

may also be suspended in oral emulsions. When issued for use, oral emulsions should be supplied in wide-mouthed bottles.

Extemporaneous preparation

In oral emulsions prepared according to the formula and directions given for extemporaneous preparation, the quantity of emulsifying agent specified in individual monographs may be reduced to yield a preparation of suitable consistency provided that by so doing the stability of the preparation is not adversely affected.

Stability of emulsions

Emulsions can break down in the following ways:

- cracking
- creaming
- phase inversion.

Cracking

This is the term applied when the disperse phase coalesces and forms a separate layer. Redispersion cannot be achieved by shaking and the preparation is no longer an emulsion. Cracking can occur if the oil turns rancid during storage. The acid formed denatures the emulsifying agent, causing the two phases to separate.

Creaming

In creaming, the oil separates out, forming a layer on top of the emulsion, but it usually remains in globules so that it can be redispersed on shaking (e.g. the cream on the top of a pint of milk). This is undesirable as the product appearance is poor and if the product is not adequately shaken there is a risk of the patient obtaining an incorrect dose. Creaming is less likely to occur if the viscosity of the continuous phase is increased.

Phase inversion

This is the process when an oil-in-water emulsion changes to a water-in-oil emulsion or vice versa. For stability of an emulsion, the optimum range of concentration of dispersed phase is 30–60%