When evaluating the results of these studies, it is important to recognize that they form a part of the stress testing and are not therefore designed to establish qualitative or quantitative limits for change.

Confirmatory studies should then be undertaken to provide the information necessary for handling, packaging, and labeling. Normally, only one batch of drug substance is tested during the development phase, and subsequently, the photostability characteristics should be confirmed on a single batch selected, as described in the parent guideline, if the drug is clearly photostable or photolabile. If the results of the confirmatory study are equivocal, testing of up to two additional batches should be conducted. Care should be taken to ensure that the physical characteristics of the samples under test are taken into account, and efforts, such as cooling and/or placing the samples in sealed containers, should be made to ensure that the effects of the changes in physical states, such as sublimation, evaporation, and melting, are minimized. All such precautions should be chosen to provide minimal interference with the exposure of samples under test. Possible interactions between the samples and any material used for containers or for the general protection of the sample should also be considered and eliminated, wherever not relevant to the test being carried out. The confirmatory studies should identify precautionary measures needed in manufacturing or in the formulation of the drug product and if light-resistant packaging is needed. When evaluating the results of confirmatory studies to determine whether the change caused by exposure to light is acceptable, it is important to consider the results from other formal stability studies, in order to ensure that the drug will be within the justified limits at the time of use.

As a direct challenge for samples of solid drug substances, an appropriate amount of sample should be taken and placed in a suitable glass or plastic dish and protected with a suitable transparent cover, if considered necessary. Solid drug substances should be spread across the container to give a thickness of typically not more than 3 mm. In cases where solid drug substance samples are involved, sampling should ensure that a representative portion is used in individual tests. Similar sampling considerations, such as homogenization of the entire sample, apply to other materials that may not be homogeneous after exposure. The analysis of the exposed sample should be performed concomitantly with that of any protected samples used as dark control, if these are used in the test.

Drug substances that are liquids should be exposed in chemically inert and transparent containers. At the end of the exposure period, the samples should be examined for any changes in physical properties (e.g., appearance, clarity, and color of solution) and for assay. The degradants must be examined by a method suitably validated for products likely to arise from photochemical degradation processes.

Protection from light often offers excellent solutions to stabilize liquids; the use of amber-colored vials and ampuls is one example of precaution taken in reducing the effect of light waves.

7.4.5 Surface Activity

Many drugs show surface-active behavior, because they have the correct mixture of chemical groups that are characteristic of surfactants. The surface activity of drugs