



U.S. Pharmacopeia
The Standard of QualitySM

**USP PREDNISON TABLETS RS
Lot P0E203
(10 mg nominal prednisone content per tablet)**

**DISINTEGRATING TABLETS
FOR DISSOLUTION PERFORMANCE VERIFICATION TEST**

The USP Prednisone Tablets RS is provided for use in the *Apparatus Suitability Test* for USP Apparatus 1 and 2 in the USP General Test Chapters on DISSOLUTION <711> and DRUG RELEASE <724>, and for Apparatus 5 in DRUG RELEASE <724>. Do not expose the tablets to excessive humidity.

Dissolution Medium- We recommend preparing the medium as follows: Heat a suitable amount of water, while stirring gently, to about 41°. Filter under vacuum through a 0.45-µm-porosity filter into a suitable filtering flask equipped with a stirring device. Seal the flask and continue to apply vacuum while stirring for an additional five minutes. Other deaeration techniques validated for 37° may be used. The temperature of the *Dissolution medium* does not fall below 37° prior to the initiation of the test.

Procedure- [See DISSOLUTION <711> and DRUG RELEASE <724> in the current USP.] Determine the quantity of prednisone, C₂₁H₂₆O₅, dissolved at thirty minutes, in each vessel, expressed as percent of the labeled amount. Use 500 mL of deaerated water as the *Dissolution medium* and conduct the test at 37°. Operate each apparatus at 50- rpm speed. Measure the amount of prednisone dissolved from filtered portions of the sample aliquots withdrawn at thirty minutes, at 242 nm (the approximate wavelength of maximum absorbance) in comparison with a solution of known concentration of USP Prednisone Reference Standard.

Test Interpretation -- The apparatus is suitable if each of the individual calculated values for each apparatus is within the specified ranges shown in the Table.

Notes: An amount of alcohol not to exceed 5% of the total volume of the standard solution may be used to bring the prednisone standard into solution prior to dilution with *Dissolution medium*. The filtering method must not cause adsorptive loss of drug. Bias introduced by automated methods is to be avoided. If equipment is dedicated for use with only one apparatus (basket or paddle), then performance verification is only required for that apparatus.

These values apply only to Lot P0E203

Apparatus	Percentage of the labeled amount of prednisone dissolved at 30 minutes at 50-rpm
1	47 - 82
2	37 - 70

Founded in 1820, the United States Pharmacopeial Convention comprises representatives from colleges and national and state organizations of medicine and pharmacy. It revises and publishes *The United States Pharmacopeia* and *The National Formulary*, the legally recognized compendia of standards for drugs.

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Prednisone Tablets: Performance Verification Notes

Dissolution equipment that has been routinely used for a number of years (three-five) should be serviced if out-of-range values are obtained. The performance of any dissolution equipment that is used routinely should be verified at regular intervals. Relocation of apparatus always requires recertification. Some USP Dissolution tests require 2-L vessels or speeds other than 50 and 100 rpm. The equipment is suitable for these other conditions if it passes the performance verification tests.

Examples for Sources of Error in Performance Verification Testing

Deaeration of medium. Improper deaeration is a common problem. This formulation has been demonstrated to be sensitive to dissolved gases in the medium. One method of deaeration is as follows: Heat the medium, while stirring gently, to about 41°, and filter under vacuum through a 0.45- μ m-porosity filter into a suitable filtering flask, equipped with a stirring device. Seal the flask and continue to apply vacuum while stirring for an additional five minutes. Do not allow the temperature of the *Dissolution Medium* to fall below 37° prior to the initiation of the test. Gently transfer the medium directly to the vessel. Rotating the Apparatus 2 shafts to speed equilibration to 37° is discouraged. Use medium promptly after it is equilibrated.

Vessels. Vessels must be clean. Use of an unacceptable vessel is a systematic error.

Vibration and mechanical problems. When not properly examined and maintained, factors such as dissolution head coplanarity, shaft perpendicularity, tension on the drive chain or belt, centering, and operating condition of the gear plates can adversely affect dissolution. Digital rpm readings may not necessarily represent individual spindle speeds. Visual inspection may be needed to observe surging of the separate spindles. To minimize vibration effects, the dissolution equipment should be on a stable bench top or table. Other mechanical equipment using fans, pumps, or other vibration sources should be removed from the area or isolated in some other way. Turbulence in the water bath caused by circulation patterns can affect results in one or more vessels.

Automation. Always validate the automated method, including the analytical method and sampling method, by performing a parallel manual analysis, withdrawing test samples at the same times, and comparing to the automated results. Filter probes may become clogged, absorb the active ingredient, or generate additional turbulence through the air-purging step. Be alert to the possibility of carryover among samplings. Automated systems may not account for dilution and the absorbance reading may be over 1.0 absorbance units. Linearity above 1.0 absorbance should be established with a standard curve.

Tablets. The Prednisone Tablets should be stored in the original containers in a dry place. Avoid excess humidity. When testing, take the tablets from the bottle and begin the dissolution test immediately.

Reference Standard. Use the current lot of USP Reference Standard and follow any handling instructions on the label. Prepare the standard solution on the day of use.

Filtering. Do not centrifuge sample. The sample aliquot should be filtered immediately after the sample is drawn. The filters should be tested for interference from leachables or by adsorption of the drug. A separate clean syringe and filter should be used for sampling each vessel.

Paddles and baskets. The shafts of both apparatuses should be straight. A simple test of this is to roll the shaft on the bench top with the paddle blade or prongs for the basket hanging over the edge. The shaft should roll evenly like an arrow shaft. Baskets should be straight and not frayed. Routine use in hydrochloric acid Medium causes deterioration of the stainless steel baskets. Baskets should attach firmly to the shaft prongs. Evaporation lids should be used. Inspect them for fit or warping.

For additional information, see www.usp.org.