

§ 442.212 Cefoperazone injectable dosage forms.**§ 442.212a Sterile cefoperazone sodium.**

The requirements for certification and the tests and methods of assay for sterile cefoperazone sodium packaged for dispensing are described in § 442.12a.

[48 FR 790, Jan. 7, 1983. Redesignated at 51 FR 36688, Oct. 15, 1986]

§ 442.212b Cefoperazone sodium injection.

(a) *Requirements for certification*—(1) *Standards of identity, strength, quality, and purity.* Cefoperazone sodium injection is a frozen aqueous iso-osmotic solution of cefoperazone sodium which may contain one or more suitable and harmless buffer substances in a diluent. Each milliliter contains cefoperazone sodium equivalent to either 20 milligrams or 40 milligrams of cefoperazone per milliliter. Its cefoperazone content is satisfactory if it is not less than 90 percent and not more than 120 percent of the number of milligrams of cefoperazone that it is represented to contain. It is sterile. It is nonpyrogenic. Its pH is not less than 4.5 and not more than 6.5. It passes the identity test. The cefoperazone sodium used conforms to the standards prescribed by § 442.12(a)(1).

(2) *Labeling.* It shall be labeled in accordance with the requirements of § 432.5 of this chapter.

(3) *Requests for certification; samples.* In addition to complying with the requirements of § 431.1 of this chapter, each such request shall contain:

(i) Results of tests and assays on:

(a) The cefoperazone sodium used in making the batch for potency, moisture, pH, and identity.

(b) The batch for potency, sterility, pyrogens, pH, and identity.

(ii) Samples, if required by the Director, Center for Drug Evaluation and Research:

(a) The cefoperazone sodium used in making the batch: 10 packages, each containing approximately 500 milligrams.

(b) The batch:

(1) For all tests except sterility: A minimum of 10 immediate containers.

(2) For sterility testing: 20 immediate containers collected at regular intervals throughout each filling operation.

(b) *Tests and methods of assay.* Thaw the sample as directed in the labeling. The sample solution used for testing must be at room temperature.

(1) *Potency.* Proceed as directed in § 436.338 of this chapter, preparing the sample solution and calculating the cefoperazone content as follows:

(i) *Sample solution.* Using a suitable hypodermic needle and syringe, remove an accurately measured representative portion from each container and dilute with mobile phase to obtain a solution containing 160 micrograms per milliliter (estimated).

(ii) *Calculations.* Calculate the milligrams of cefoperazone per milliliter of sample as follows:

$$\text{Milligrams of cefoperazone per milliliter} = \frac{A_u \times P_s \times d}{A_s \times 1,000}$$

where:

A_u =Area of the cefoperazone peak in the chromatogram of the sample (at a retention time equal to that observed for the standard);

A_s =Area of the cefoperazone peak in the chromatogram of the cefoperazone working standard;

P_s =Cefoperazone activity in the cefoperazone working standard solution in micrograms per milliliter; and

d =Dilution factor of the sample.

(2) *Sterility.* Proceed as directed in § 436.20 of this chapter, using the method described in paragraph (e)(1) of that section.

(3) *Pyrogens.* Proceed as directed in § 436.32(a) of this chapter, except inject a sufficient volume of the undiluted solution to deliver 10 milligrams of cefoperazone per kilogram.

(4) *pH.* Proceed as directed in § 436.202 of this chapter, using the undiluted solution.

(5) *Identity.* The high-performance liquid chromatogram of the sample determined as directed in paragraph (b)(1) of this section compares qualitatively to that of the cefoperazone working standard.

[51 FR 36688, Oct. 15, 1986, as amended at 54 FR 47352, Nov. 14, 1989; 55 FR 11583, Mar. 29, 1990]