

**Status:** Effectivity information can only be shown for content published to the website.

Update information can only be shown for content published to the website.

## Ofloxacin Infusion

Details for the public consultation of this monograph are as follows:

EAG ABS	Antibiotics
Contact Details	stephen.maddocks@mhra.gov.uk hannah.bowden@mhra.gov.uk
Deadline for Comment	31 <sup>st</sup> December 2020
Target Publication (subject to change)	BP 2023
Notes:	NEW Monograph prepared by correspondence with manufacturers. <b>If limits are too restrictive, please provide batch/stability data to demonstrate that an increase is required.</b>

### Action and use

Fluoroquinolone antibacterial

### DEFINITION

Ofloxacin Infusion is a sterile solution of Ofloxacin in a suitable vehicle.

The infusion complies with the requirements stated under [Parenteral Preparations](#) and with the following requirements.

### Content of ofloxacin, $C_{18}H_{20}FN_3O_4$

95.0 to 105.0% of the stated amount.

### IDENTIFICATION

A. Shake a volume of the infusion containing 0.1g Ofloxacin with an equal volume of [dichloromethane](#). Evaporate the bottom layer to dryness. The [infrared absorption spectrum](#) of the residue, [Appendix II A](#), is concordant with the reference spectrum of Ofloxacin (RS XXX).

B. In the Assay, the retention time of the principal peak in the chromatogram obtained with solution (1) is similar to that of the peak in the chromatogram obtained with solution (2).

### TESTS

#### Acidity

pH of a 0.2% w/v solution of Ofloxacin, 4.0 to 5.0, [Appendix V L](#).

#### Related substances

Carry out the method for [liquid chromatography, Appendix III D](#), using the following solutions in a mixture of 14 volumes of [acetonitrile](#) and 86 volumes of solution A as the diluent.

*Solution A:* 3.08 g/L of [ammonium acetate](#) and 5.38 g/L of [sodium perchlorate](#), adjusted to pH 2.2 using orthophosphoric acid.

- (1) Dilute a suitable volume of the infusion with the diluent to form a solution containing 0.04% w/v Ofloxacin
- (2) Dilute 1 volume of solution (1) to 200 volumes with the diluent.
- (3) 0.00008% w/v each of [Ofloxacin Impurity D EPCRS](#) and [Ofloxacin Impurity E EPCRS](#) and 0.0002% w/v of [Ofloxacin BPCRS](#).
- (4) Dilute 1 volume of solution (2) to 5 volumes.

#### CHROMATOGRAPHIC CONDITIONS

- (a) Use a stainless steel column (15 cm × 4.6 mm) packed with [end-capped octadecylsilyl silica gel for chromatography](#) (3 µm) (YMC Pack Pro C18 is suitable).
- (b) Use gradient elution and the mobile phase described below.
- (c) Use a flow rate of 1.0 mL per minute.
- (d) Use a column temperature of 38°.
- (e) Use a detection wavelength of 294 nm.
- (f) Inject 10 µL of each solution.

#### MOBILE PHASE

*Mobile phase A* 16 volumes of [acetonitrile](#) and 84 volumes of solution A.

*Mobile phase B* 20 volumes of [methanol](#), 30 volumes of [acetonitrile](#) and 50 volumes of solution A..

Time (Minutes)	Mobile phase A (% v/v)	Mobile phase B (% v/v)	Comment
0-5	100	0	isocratic
5-10	100→82	0→18	linear gradient
10-15	82→40	18→60	linear gradient
15-30	40	60	isocratic
30-32	40→100	60→100	linear gradient
32-40	100	0	re-equilibration

When the chromatograms are recorded under the prescribed conditions, the relative retention(s) with reference to Ofloxacin (retention time about 10 minutes) are: impurity D, about 0.7; impurity E, about 0.93 and impurity A, about 2.8.

#### SYSTEM SUITABILITY

The test is not valid unless:

in the chromatogram obtained with solution (3), the [resolution](#) between impurity E and ofloxacin is at least 2.0 and;

in the chromatogram obtained with solution (4), the signal-to-noise ratio of the peak due to ofloxacin is not less than 45.

#### LIMITS

Identify any peak corresponding to impurity D in the chromatogram obtained with solution (1), using the chromatogram obtained with solution (3), and multiply the area of this peak by a correction factor of 4.5.

In the chromatogram obtained with solution (1):

the area of any peak corresponding to impurity D is not greater than twice the area of the principal peak in the chromatogram obtained with solution (4) (0.2%);

the area of any other [secondary peak](#) is not greater than twice the area of the principal peak in the chromatogram obtained with solution (4) (0.2%);

the sum of the areas of any [secondary peaks](#) is not greater than the area of the principal peak in the chromatogram obtained with solution (2) (0.5%).

Disregard any peak with an area less than the area of the principal peak in the chromatogram obtained with solution (4) (0.1%).

## ASSAY

Carry out the method for [liquid chromatography](#), [Appendix III D](#), using the following solutions in the mobile phase.

- (1) Dilute a suitable volume of the infusion to produce a solution containing 0.001% w/v Ofloxacin.
- (2) 0.001% w/v of [Ofloxacin BPCRS](#).

### CHROMATOGRAPHIC CONDITIONS

- (a) Use a stainless steel column (10 cm × 4.6 mm) packed with [end-capped octadecylsilyl silica gel for chromatography](#) (3.5 µm) (Symmetry C18 is suitable).
- (b) Use isocratic elution and the mobile phase described below.
- (c) Use a flow rate of 2.0 mL per minute.
- (d) Use an ambient column temperature.
- (e) Use a detection wavelength of 294 nm.
- (f) Inject 20 µL of each solution.
- (g) Allow the chromatography to proceed for twice the retention time of ofloxacin.

### MOBILE PHASE

10 volumes of [acetonitrile](#) and 90 volumes of a solution containing 27.2 g/L of [potassium dihydrogen phosphate](#), previously adjusted to pH 3.3 with orthophosphoric acid.

When the chromatograms are recorded under the prescribed conditions, the retention time of Ofloxacin is about 14 minutes.

### SYSTEM SUITABILITY

The test is not valid unless, in the chromatogram obtained with solution (2), the [symmetry factor](#) of the principal peak is not less than 0.8 and not greater than 2.0.

### DETERMINATION OF CONTENT

Calculate the content of Ofloxacin, C<sub>18</sub>H<sub>20</sub>FN<sub>3</sub>O<sub>4</sub>, in the infusion from the chromatograms obtained and using the declared content of C<sub>18</sub>H<sub>20</sub>FN<sub>3</sub>O<sub>4</sub>, in [Ofloxacin BPCRS](#).

## IMPURITIES

The impurities limited by the requirements of this monograph include impurity D listed under [Ofloxacin](#).