



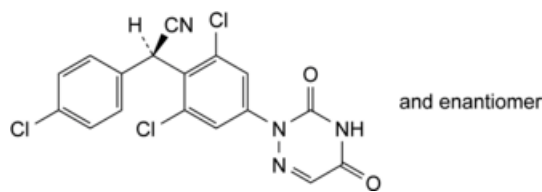
Edition: BP 2025 (Ph. Eur. 11.6 update)

Diclazuril



General Notices

(Diclazuril for Veterinary Use, Ph. Eur. monograph 1718)



C₁₇H₉Cl₃N₄O₂ 407.6 101831-37-2

Action and use

Antiprotozoal (veterinary); coccidiosis.

Ph Eur

DEFINITION

(RS)-(4-Chlorophenyl)[2,6-dichloro-4-(3,5-dioxo-4,5-dihydro-1,2,4-triazin-2(3H)-yl)phenyl]acetonitrile.

Content

99.0 per cent to 101.0 per cent (dried substance).

CHARACTERS

Appearance

White or light yellow powder.

Solubility

Practically insoluble in water, sparingly soluble in dimethylformamide, practically insoluble in ethanol (96 per cent) and in methylene chloride.

IDENTIFICATION

Infrared absorption spectrophotometry ([2.2.24](#)).

Comparison [diclazuril CRS](#).

TESTS

Related substances

Liquid chromatography (2.2.29).

Test solution Dissolve 20.0 mg of the substance to be examined in [dimethylformamide R](#) and dilute to 20.0 mL with the same solvent.

Reference solution (a) Dissolve 5 mg of [diclazuril for system suitability CRS](#) (containing impurity D) in [dimethylformamide R](#) and dilute to 5 mL with the same solvent.

Reference solution (b) Dilute 1.0 mL of the test solution to 100.0 mL with [dimethylformamide R](#). Dilute 1.0 mL of the solution to 10.0 mL with [dimethylformamide R](#).

Column:

- *size:* $l = 0.10\text{ m}$, $\varnothing = 4.6\text{ mm}$;
- *stationary phase:* [base-deactivated end-capped octadecylsilyl silica gel for chromatography R](#) (3 μm);
- *temperature:* 35 °C.

Mobile phase:

- *mobile phase A:* mix 10 volumes of a 6.3 g/L solution of [ammonium formate R](#) adjusted to pH 4.0 with [formic acid R](#), 15 volumes of [acetonitrile for chromatography R](#) and 75 volumes of [water for chromatography R](#);
- *mobile phase B:* mix 10 volumes of a 6.3 g/L solution of [ammonium formate R](#) adjusted to pH 4.0 with [formic acid R](#), 85 volumes of [acetonitrile for chromatography R](#) and 5 volumes of [water for chromatography R](#);

Time (min)	Mobile phase A (per cent V/V)	Mobile phase B (per cent V/V)
0 - 20	100 → 0	0 → 100
20 - 25	0	100

Flow rate 1.0 mL/min.

Detection Spectrophotometer at 230 nm.

Injection 5 μL .

System suitability Reference solution (a):

- *peak-to-valley ratio:* minimum 1.5, where H_p = height above the baseline of the peak due to impurity D and H_v = height above the baseline of the lowest point of the curve separating this peak from the peak due to diclazuril.

Identification of impurities Use the chromatogram supplied with [diclazuril for system suitability CRS](#) and the chromatogram obtained with reference solution (a) to identify the peak due to impurity D.

Relative retention With reference to diclazuril (retention time = about 14 min): impurity D = about 1.03.

Limits:

- *correction factor:* for the calculation of content, multiply the peak area of impurity D by 1.9;
- *impurity D:* not more than the area of the principal peak in the chromatogram obtained with reference solution (b) (0.1 per cent);
- *unspecified impurities:* for each impurity, not more than twice the area of the principal peak in the chromatogram obtained with reference solution (b) (0.20 per cent);
- *total:* not more than 7 times the area of the principal peak in the chromatogram obtained with reference solution (b) (0.7 per cent);

— *disregard limit*: the area of the principal peak in the chromatogram obtained with reference solution (b) (0,10 per cent); do not disregard the peak due to impurity D.

Loss on drying (2.2.32)

Maximum 0.5 per cent, determined on 1.000 g by drying in an oven at 105 °C for 4 h.

Sulfated ash (2.4.14)

Maximum 0.1 per cent, determined on 1.0 g.

ASSAY

Dissolve 0.150 g in 75 mL of [dimethylformamide R](#). Carry out a potentiometric titration ([2.2.20](#)), using [0.1 M tetrabutylammonium hydroxide](#). Read the volume added at the second inflexion point. Carry out a blank titration.

1 mL of [0.1 M tetrabutylammonium hydroxide](#) is equivalent to 20.38 mg of $C_{17}H_9Cl_3N_4O_2$.

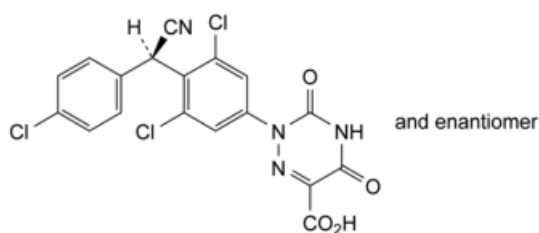
STORAGE

Protected from light.

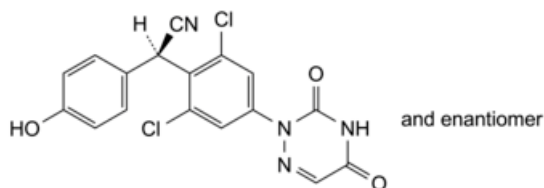
IMPURITIES

Specified impurities D.

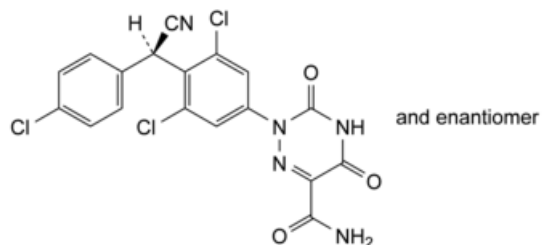
Other detectable impurities (the following substances would, if present at a sufficient level, be detected by one or other of the tests in the monograph. They are limited by the general acceptance criterion for other/unspecified impurities and/or by the general monograph [Substances for pharmaceutical use \(2034\)](#). It is therefore not necessary to identify these impurities for demonstration of compliance. See also [5.10. Control of impurities in substances for pharmaceutical use](#)) A, B, C, E, F, G, H, I.



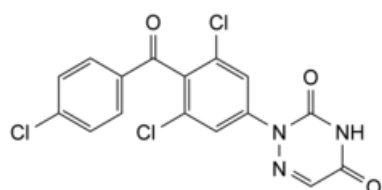
A. 2-[3,5-dichloro-4-[(RS)-(4-chlorophenyl)cyanomethyl]phenyl]-3,5-dioxo-2,3,4,5-tetrahydro-1,2,4-triazine-6-carboxylic acid,



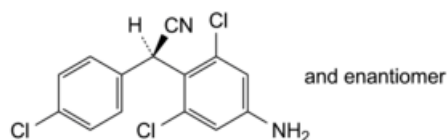
B. (RS)-[2,6-dichloro-4-(3,5-dioxo-4,5-dihydro-1,2,4-triazin-2(3H)-yl)phenyl](4-hydroxyphenyl)acetonitrile,



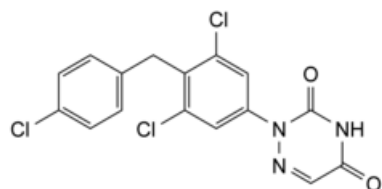
C. 2-[3,5-dichloro-4-[(*RS*)-(4-chlorophenyl)cyanomethyl]phenyl]-3,5-dioxo-2,3,4,5-tetrahydro-1,2,4-triazine-6-carboxamide,



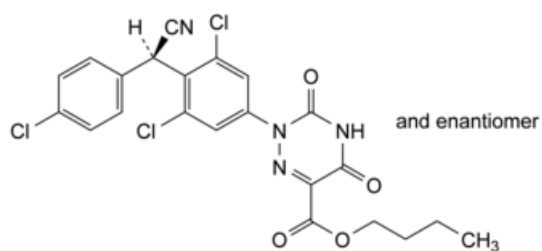
D. 2-[3,5-dichloro-4-(4-chlorobenzoyl)phenyl]-1,2,4-triazine-3,5(2*H*,4*H*)-dione,



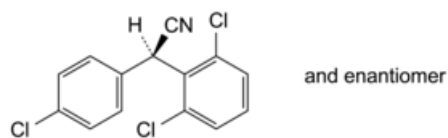
E. (*RS*)-(4-amino-2,6-dichlorophenyl)(4-chlorophenyl)acetonitrile,



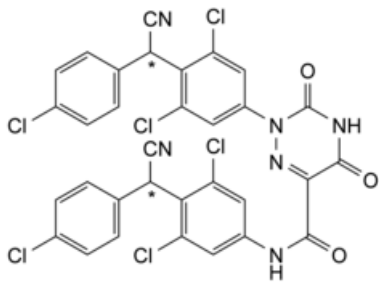
F. 2-[3,5-dichloro-4-[(4-chlorophenyl)methyl]phenyl]-1,2,4-triazine-3,5(2*H*,4*H*)-dione,



G. butyl 2-[3,5-dichloro-4-[(*RS*)-(4-chlorophenyl)cyanomethyl]phenyl]-3,5-dioxo-2,3,4,5-tetrahydro-1,2,4-triazine-6-carboxylate,



H. (*RS*)-(4-chlorophenyl)(2,6-dichlorophenyl)acetonitrile,



I. *N*,2-bis[3,5-dichloro-4-[(*E*)-(4-chlorophenyl)cyanomethyl]phenyl]-3,5-dioxo-2,3,4,5-tetrahydro-1,2,4-triazine-6-carboxamide.

Ph Eur