

CERTIFICATE OF ANALYSIS

PRODUCT : DILTIAZEM HCl (MICRONISED)		COMPENDIA : Ph.Eur.-7.7	
BATCH NO. : DIL/M-15413		QUANTITY : 140 Kg	
MFG. DATE : AUGUST.2013		EXP. DATE : JULY.2018	
QC A.R. No.: FP/186/2013			
TESTS		RESULTS	
01. CHARACTERS		SPECIFICATIONS	

01. CHARACTERS		
i. Appearance	A white, crystalline powder.	White or almost white, crystalline powder.
ii. Solubility	Freely soluble in water, in methanol and in methylene chloride, slightly soluble in anhydrous ethanol.	Freely soluble in water, in methanol and in methylene chloride, slightly soluble in anhydrous ethanol.
iii. Melting point	Melting at 213°C with decomposition.	Melts at about 213° C with decomposition.
02. IDENTIFICATION		
IR Absorption	Concordant with working standard	IR Absorption spectrum of the sample is concordant with that of the Diltiazem hydrochloride CRS / working standard.
CHLORIDES	Positive	It gives reaction to chlorides.
03. APPEARANCE OF SOLUTION	Clear and colorless	Clear and colourless.
04. pH	4.8	4.3 to 5.3
05. SPECIFIC OPTICAL ROTATION	+116°	+ 115° to + 120°
06. RELATED SUBSTANCES		
i. Impurity F	Not Quantified	Not more than 0.3% w/w
ii. Unspecified Impurities	Not Quantified	Not more than 0.10% w/w each
iii. Total Impurities	Not Quantified	Not more than 0.30% w/w
07. HEAVY METALS	Less than 10 ppm	Not more than 10 ppm
08. LOSS ON DRYING	0.26%	Not more than 0.50% w/w
09. SULPHATED ASH	0.01%	Not more than 0.10% w/w
10. ASSAY (By Titration)	99.87%	Not less than 98.50% w/w and Not more than 101.00% w/w
ADDITIONAL TEST:		
PARTICLE SIZE		
100%	22 Microns	100% Less than 100 Microns
Surface Area	1.95 m ² /gm	For Information
RESIDUAL SOLVENTS (BY GC-HS)		
Toluene	225 ppm	Not more than 750 ppm
Methanol	79 ppm	Not more than 500 ppm
Isopropyl Alcohol	2 ppm	Not more than 1000 ppm
Ethyl Acetate	1 ppm	Not more than 2500 ppm
Bulk Density	0.25 g/ml	For Information
Tapped Density	0.46 g/ml	For Information

REMARKS: The product conforms to Ph.Eur.-7.7 & Customer's Specifications

Prepared by
Executive-QC

Checked by
Manager-QC

Approved by
General Manager-QC

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CERTIFICATE OF ANALYSIS

PRODUCT : DILTIAZEM HCl (Micronised)	COMPENDIA : JP XVI
BATCH NO. : DIL/M-15413	QUANTITY : 140 Kg
MFG. DATE : AUGUST.2013	EXP. DATE : JULY.2018
QC A.R.No.: FP/186/2013	

TESTS	RESULTS	SPECIFICATIONS
01. DESCRIPTION	White crystalline powder. It is very soluble in formic acid, freely soluble in water, in methanol and in chloroform, sparingly soluble in acetonitrile, slightly soluble in acetic anhydride and in ethanol (99.5%) and practically insoluble in diethyl ether.	White crystals or crystalline powder. It is very soluble in formic acid, freely soluble in water, in methanol and in chloroform, sparingly soluble in acetonitrile, slightly soluble in acetic anhydride and in ethanol (99.5%), and practically insoluble in diethyl ether.
02. IDENTIFICATION		
1. Reaction with Ammonium thiocyanate cobaltous nitrate	Conforms	To comply as per JP
2. Reaction of sulphates	Conforms	
3. UV	Conforms	To comply as per JP
4. IR Spectrum	Conforms	UV spectrum of sample and standard should exhibit similar intensities of absorption at the same wavelengths. The IR of the test sample exhibits absorption at the wave numbers of about 1741 cm ⁻¹ , 1678 cm ⁻¹ , 1252 cm ⁻¹ , and 1025 cm ⁻¹ . To comply as per JP
5. Reaction of chloride	Positive	Between +115° and +120°
03. OPTICAL ROTATION	+ 116°	210° to 215° C (with Decomposition)
04. MELTING POINT	213° C (with decomposition)	Between 4.3 to 5.3
05. pH	4.8	The solution is clear and colourless.
06. CLARITY AND COLOUR OF SOLUTION	Clear and colorless	
07. SULFATES	Less than 0.024%	Not more than 0.024%
08. HEAVY METALS	Less than 10 ppm	Not more than 10 ppm
09. ARSENIC	Less than 2 ppm	Not more than 2 ppm
10. RELATED SUBSTANCES (By HPLC)		
Total impurities	0.2%	Not more than 0.3%
11. LOSS ON DRYING	0.3%	Not more than 0.5% w/w
12. RESIDUE ON IGNITION	0.0%	Not more than 0.1% w/w
13. ASSAY (On dry basis)	99.9%	Not less than 98.5% w/w
ADDITIONAL TESTS:		
PARTICLE SIZE		
100%	22 Microns	100% Less than 100 Microns
Surface Area	1.95 m ² /gm	For Information
RESIDUAL SOLVENTS		
Toluene	225 ppm	Not more than 750 ppm
Methanol	79 ppm	Not more than 500 ppm
Isopropyl Alcohol	2 ppm	Not more than 1000 ppm
Ethyl Acetate	1 ppm	Not more than 2500 ppm
Bulk Density	0.25 g/ml	For Information
Tapped Density	0.46 g/ml	For Information

REMARKS: The product conforms to JP XVI & Customer's Specifications.

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