



Piramal Healthcare Limited

knowledge action care

CERTIFICATE OF ANALYSIS

PRODUCT : DILTIAZEM HCl (MICRONISED)	COMPENDIA : Ph.Eur.-7.4
BATCH NO. : DIL/M-12012	QUANTITY : 500 Kg
MFG. DATE : DECEMBER.2012	EXP. DATE : NOVEMBER.2017
QC A.R. No.: FP/306/2012	
TESTS	RESULTS
01. CHARACTERS	SPECIFICATIONS

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	Melted 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	Conforms	It gives reaction to chlorides.
03. APPEARANCE OF SOLUTION	Clear and colorless	Clear and colourless.
04. pH	4.9	4.3 to 5.3
05. SPECIFIC OPTICAL ROTATION	+117°	+ 115° to + 120°
06. RELATED SUBSTANCES		
i. Impurity F	Not Quantified	Not more than 0.2% 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	0.12%	Not more than 0.50% w/w
09. SULPHATED ASH	0.03%	Not more than 0.10% w/w
10. ASSAY (By Titration) (On dried basis)	99.96%	Not less than 98.50% w/w and Not more than 101.00% w/w
ADDITIONAL TEST:		
PARTICLE SIZE		
100%	73 Microns	100% Less than 100 Microns
Surface Area	1.64 m ² /gm	For Information
RESIDUAL SOLVENTS		
Toluene	264 ppm	Not more than 750 ppm
Methanol	155 ppm	Not more than 500 ppm
Isopropyl Alcohol	6 ppm	Not more than 1000 ppm
Ethyl Acetate	9 ppm	Not more than 2500 ppm
Bulk Density	0.29 g/ml	For Information
Tapped Density	0.52 g/ml	For Information

REMARKS: The product conforms to **Ph.Eur.-7.4 & Customer's Specifications**

Prepared by
Prepared by
Executive-QC

Checked by
Checked by
Executive-QC

Approved by
Approved by
Manager-QC

Factory : Digwal Village Kohir Mandal Medak Dist 502321 Andhra Pradesh India

T+91 8451 287508 F +91 8451 287553 W www.piramalhealthcare.com

Admin. Off : 5-9-30 Road # 4 Basheerbagh Palace Colony Basheerbagh Hyderabad 500 063 India

T + 91 40 2322 6719 F +91 40 2326 6041 / 82

Regd. Off : Piramal Tower Peninsula Corporate Park Ganpatrao Kadam Marg Lower Parel Mumbai - 400 013.

T +91 22 3046 6666 F +91 22 2493 6708



Piramal Healthcare Limited

knowledge action care

CERTIFICATE OF ANALYSIS

CERTIFICATE OF ANALYSIS			
PRODUCT : DILTIAZEM HCl (Micronised)		COMPENDIA : JP XVI	
BATCH NO. : DIL/M-12012		QUANTITY : 500 Kg	
MFG. DATE : DECEMBER.2012		EXP. DATE : NOVEMBER.2017	
QC A.R.No.: FP/306/2012			
TESTS		RESULTS	
01. DESCRIPTION		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	To comply as per JP
3. UV	Conforms	UV spectrum of sample and standard should exhibits 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
4. IR Spectrum	Conforms	To comply as per JP
5. Reaction of chloride	Conforms	Between +115° and +120°
03. OPTICAL ROTATION	+ 117°	210° to 215° C (with Decomposition)
04. MELTING POINT	213° C (with decomposition)	Between 4.3 to 5.3
05. pH	4.9	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	0.0%	Not more than 0.3%
11. LOSS ON DRYING	0.1%	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%	73 Microns	100% Less than 100 Microns
Surface Area	1.64 m ² /gm	For Information
RESIDUAL SOLVENTS		
Toluene	264 ppm	Not more than 750 ppm
Methanol	155 ppm	Not more than 500 ppm
Isopropyl Alcohol	6 ppm	Not more than 1000 ppm
Ethyl Acetate	9 ppm	Not more than 2500 ppm
Bulk Density	0.29 g/ml	For Information
Tapped Density	0.52 g/ml	For Information

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

Prepared by
Executive-QC

Checked by
Executive-QC

Approved by
Manager-QC

Factory : Digwal Village Kohir Mandal Medak Dist 502321 Andhra Pradesh India

T+91 8451 287508 F +91 8451 287553 W www.piramalhealthcare.com

Admin. Off : 5-9-30 Road # 4 Basheerbagh Palace Colony Basheerbagh Hyderabad 500 063 India

T +91 40 2322 6719 F +91 40 2326 6041 / 82

Regd. Off : Piramal Tower Peninsula Corporate Park Ganpatrao Kadam Marg Lower Parel Mumbai - 400 013.

T +91 22 3046 6666 F +91 22 2493 6708