

## 1 Silodosin Orally Disintegrating Tablets

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4 Silodosin Orally Disintegrating Tablets contain not  
5 less than 95.0% and not more than 105.0% of the  
6 labeled amount of silodosin (C<sub>25</sub>H<sub>32</sub>F<sub>3</sub>N<sub>3</sub>O<sub>4</sub>: 495.53).

7 **Method of preparation** Prepare as directed under Tab-  
8 lets, with Silodosin.

9 **Identification** Conduct this procedure using light-re-  
10 sistant vessels. To 1 tablet of Silodosin Orally Disintegrat-  
11 ing Tablets add 15 mL of a mixture of methanol and a so-  
12 lution of sodium chloride (1 in 200) (7:3) per 1 mg of Silo-  
13 dosin, and sonicate until the tablet is completely disinte-  
14 grated while occasional shaking. Add a mixture of metha-  
15 nol and a solution of sodium chloride (1 in 200) (7:3) so  
16 that each mL contains about 40 µg of Silodosin, and filter  
17 through a membrane filter with a pore size not exceeding  
18 0.45 µm. Discard the first 3 mL of the filtrate, and use the  
19 subsequent filtrate as the sample solution. Separately, dis-  
20 solve 20 mg of Silodosin RS in a mixture of methanol and  
21 a solution of sodium chloride (1 in 200) (7:3) to make 50  
22 mL. To 5 mL of this solution add a mixture of methanol  
23 and a solution of sodium chloride (1 in 200) (7:3) to make  
24 50 mL, and use this solution as the standard solution. Per-  
25 form the test with 10 µL each of the sample solution and  
26 standard solution as directed under Liquid Chromatog-  
27 raphy <2.01> according to the following conditions: the re-  
28 tention times of the principal peaks in the chromatograms  
29 obtained from the sample solution and standard solution are  
30 the same, and both absorption spectra of these peaks exhibit  
31 similar intensities of absorption at the same wavelengths.

32 *Operating conditions—*

33 Column, column temperature, mobile phase, and flow  
34 rate: Proceed as directed in the operating conditions in the  
35 Assay under Silodosin.

36 Detector: A photodiode array detector (wavelength: 270  
37 nm, spectrum range of measurement: 200 – 370 nm).

38 *System suitability—*

39 System performance: Proceed as directed in the system  
40 suitability in the Assay.

41 **Purity** Related substances—Conduct this procedure us-  
42 ing light-resistant vessels. To a number of Silodosin Orally  
43 Disintegrating Tablets, equivalent to 20 mg of Silodosin,  
44 add 60 mL of a mixture of methanol and a solution of so-  
45 dium chloride (1 in 200) (7:3), sonicate until the tablet is  
46 completely disintegrated while occasional shaking, and add  
47 a mixture of methanol and a solution of sodium chloride (1  
48 in 200) (7:3) to make 100 mL. Centrifuge this solution, and  
49 filter the supernatant liquid through a membrane filter with

50 a pore size not exceeding 0.45 µm. Discard the first 3 mL  
51 of the filtrate, and use the subsequent filtrate as the sample  
52 solution. Pipet 1 mL of the sample solution, add a mixture  
53 of methanol and a solution of sodium chloride (1 in 200)  
54 (7:3) to make exactly 100 mL, and use this solution as the  
55 standard solution. Perform the test with exactly 25 µL each  
56 of the sample solution and standard solution as directed un-  
57 der Liquid Chromatography <2.01> according to the fol-  
58 lowing conditions, and determine each peak area by the au-  
59 tomatic integration method: the peak area of the related  
60 substance A, having a relative retention time of about 1.3  
61 to silodosin, obtained from the sample solution is not larger  
62 than the peak area of silodosin from the standard solution,  
63 the area of the peak other than silodosin and the peak men-  
64 tioned above from the sample solution is not larger than 1/4  
65 times the peak area of silodosin from the standard solution.  
66 Furthermore, the total area of the peaks other than silodosin  
67 from the sample solution is not larger than 2 times the peak  
68 area of silodosin from the standard solution. For the peak  
69 area of the related substance A, multiply the relative re-  
70 sponse factor 0.6.

71 *Operating conditions—*

72 Detector, column, column temperature, and mobile  
73 phases A and B: Proceed as directed in the Purity (2) under  
74 Silodosin.

75 Flowing of the mobile phase: Control the gradient by  
76 mixing the mobile phases A and B as directed in the  
77 following table.

Time after injection of sample (min)	Mobile phase A (vol%)	Mobile phase B (vol%)
0 – 15	75	25
15 – 47	75 → 35	25 → 65
47 – 53	35	65

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80 Flow rate: Adjust so that the retention time of silodosin  
81 is about 13 minutes.

82 Time span of measurement: About 3.5 times as long as  
83 the retention time of silodosin, beginning after the solvent  
84 peak.

85 *System suitability—*

86 Test for required detectability: Pipet 1 mL of the  
87 standard solution, and add a mixture of methanol and a  
88 solution of sodium chloride (1 in 200) (7:3) to make exactly  
89 20 mL. Confirm that the peak area of silodosin obtained  
90 with 25 µL of this solution is equivalent to 3.5 to 6.5% of  
91 that with 25 µL of the standard solution.

92 System performance: Thinly spread out an amount of  
93 silodosin in a petri dish, exposure to a 4000 lx light for not  
94 less than 24 hours using a D<sub>65</sub> fluorescent lamp, and  
95 dissolve 4 mg of this sample in 20 mL of a mixture of  
96 methanol and a solution of sodium chloride (1 in 200) (7:3).

97 When the procedure is run with 25  $\mu\text{L}$  of this solution under  
 98 the above operating conditions, the resolution between the  
 99 peaks of silodosin and the related substance A is not less  
 100 than 6.

101 System repeatability: When the test is repeated 6 times  
 102 with 25  $\mu\text{L}$  of the standard solution under the above  
 103 operating conditions, the relative standard deviation of the  
 104 peak area of silodosin is not more than 2.0%.

105 **Uniformity of dosage units** <6.02> Perform the test ac-  
 106 cording to the following method: it meets the requirement  
 107 of the Content uniformity test.

108 Conduct this procedure using light-resistant vessels. To  
 109 1 tablet of Silodosin Orally Disintegrating Tablets add 3V/5  
 110 mL of a mixture of methanol and a solution of sodium chlo-  
 111 ride (1 in 200) (7:3), sonicate until the tablet is completely  
 112 disintegrated while occasional shaking. Add a mixture of  
 113 methanol and a solution of sodium chloride (1 in 200) (7:3)  
 114 to make exactly V mL so that each mL contains about 40  
 115  $\mu\text{g}$  of Silodosin, and filter through a membrane filter with  
 116 a pore size not exceeding 0.45  $\mu\text{m}$ . Discard the first 3 mL  
 117 of the filtrate, and use the subsequent filtrate as the sample  
 118 solution. Separately, weigh accurately about 20 mg of Silo-  
 119 dosin RS (separately determine the water <2.48> in the  
 120 same manner as Silodosin), and dissolve in a mixture of  
 121 methanol and a solution of sodium chloride (1 in 200) (7:3)  
 122 to make exactly 50 mL. Pipet 5 mL of this solution, add a  
 123 mixture of methanol and a solution of sodium chloride (1  
 124 in 200) (7:3) to make exactly 50 mL, and use this solution  
 125 as the standard solution. Perform the test with exactly 10  
 126  $\mu\text{L}$  each of the sample solution and standard solution as di-  
 127 rected under Liquid Chromatography <2.01> according to  
 128 the following conditions, and determine the peak areas,  $A_T$   
 129 and  $A_S$ , of silodosin in each solution.

130 Amount (mg) of silodosin ( $\text{C}_{25}\text{H}_{32}\text{F}_3\text{N}_3\text{O}_4$ )  
 131  $=M_S \times A_T/A_S \times V/500$

132  $M_S$ : Amount (mg) of Silodosin RS taken, calculated on  
 133 the anhydrous basis

134 *Operating conditions*—

135 Proceed as directed in the operating conditions in the  
 136 Assay under Silodosin.

137 *System suitability*—

138 Proceed as directed in the system suitability in the Assay.

139 **Disintegration** Being specified separately when the drug  
 140 is granted approval based on the Law.

141 **Dissolution** <6.10> When the test is performed at 50 rev-  
 142 olutions per minute according to the Paddle method, using  
 143 900 mL of 2nd fluid for dissolution test as the dissolution

144 medium, the dissolution rate in 15 minutes of Silodosin  
 145 Orally Disintegrating Tablets is not less than 80%.

146 Start the test with 1 tablet of Silodosin Orally Disinte-  
 147 grating Tablets, withdraw not less than 9 mL of the medium  
 148 at the specified minute after starting the test, and filter  
 149 through a membrane filter with a pore size not exceeding  
 150 0.45  $\mu\text{m}$ . Discard the first 5 mL or more of the filtrate, pipet  
 151 V mL of the subsequent filtrate, add 0.2 mol/L hydrochloric  
 152 acid TS to make exactly V' mL so that each mL contains  
 153 about 1.1  $\mu\text{g}$  of silodosin ( $\text{C}_{25}\text{H}_{32}\text{F}_3\text{N}_3\text{O}_4$ ), and use this so-  
 154 lution as the sample solution. Separately, weigh accurately  
 155 about 22 mg of Silodosin RS (separately determine the wa-  
 156 ter <2.48> in the same manner as Silodosin), and dissolve  
 157 in 0.1 mol/L hydrochloric acid TS to make exactly 100 mL.  
 158 Pipet 5 mL of this solution, add 0.1 mol/L hydrochloric acid  
 159 TS to make exactly 50 mL. Pipet 5 mL of this solution, add  
 160 0.1 mol/L hydrochloric acid TS to make exactly 100 mL,  
 161 and use this solution as the standard solution. Perform the  
 162 test with exactly 100  $\mu\text{L}$  each of the sample solution and  
 163 standard solution as directed under Liquid Chromatog-  
 164 raphy <2.01> according to the following conditions, and de-  
 165 termine the peak areas,  $A_T$  and  $A_S$ , of silodosin in each so-  
 166 lution.

167 Dissolution rate (%) with respect to the labeled amount of  
 168 silodosin ( $\text{C}_{25}\text{H}_{32}\text{F}_3\text{N}_3\text{O}_4$ )  
 169  $=M_S \times A_T/A_S \times V'/V \times 1/C \times 9/2$

170  $M_S$ : Amount (mg) of Silodosin RS taken, calculated on  
 171 the anhydrous basis

172 C: Labeled amount (mg) of silodosin ( $\text{C}_{25}\text{H}_{32}\text{F}_3\text{N}_3\text{O}_4$ ) in  
 173 1 tablet

174 *Operating conditions*—

175 Proceed as directed in the Assay under Silodosin.

176 *System suitability*—

177 System performance: When the procedure is run with  
 178 100  $\mu\text{L}$  of the standard solution under the above operating  
 179 conditions, the number of theoretical plates and the  
 180 symmetry factor of the peak of silodosin are not less than  
 181 3000 and not more than 1.6, respectively.

182 System repeatability: When the test is repeated 6 times  
 183 with 100  $\mu\text{L}$  of the standard solution under the above  
 184 operating conditions, the relative standard deviation of the  
 185 peak area of silodosin is not more than 2.0%.

186 **Assay** Conduct this procedure using light-resistant ves-  
 187 sels. To 20 tablets of Silodosin Orally Disintegrating Tab-  
 188 lets add 3V/5 mL of a mixture of methanol and a solution  
 189 of sodium chloride (1 in 200) (7:3), and sonicate until the  
 190 tablet is completely disintegrated while occasional shaking.  
 191 Add a mixture of methanol and a solution of sodium chlo-  
 192 ride (1 in 200) (7:3) to make exactly V mL so that each mL

193 contains about 40  $\mu\text{g}$  of Silodosin. Pipet 5 mL of this solu-  
194 tion, add a mixture of methanol and a solution of sodium  
195 chloride (1 in 200) (7:3) to make exactly 20 mL, and filter  
196 through a membrane filter with a pore size not exceeding  
197 0.45  $\mu\text{m}$ . Discard the first 3 mL of the filtrate, and use the  
198 subsequent filtrate as the sample solution. Separately,  
199 weigh accurately about 20 mg of Silodosin RS (separately  
200 determine the water <2.48> in the same manner as Silo-  
201 dosin), and dissolve in a mixture of methanol and a solution  
202 of sodium chloride (1 in 200) (7:3) to make exactly 50 mL.  
203 Pipet 5 mL of this solution, add a mixture of methanol and  
204 a solution of sodium chloride (1 in 200) (7:3) to make ex-  
205 actly 50 mL, and use this solution as the standard solution.  
206 Perform the test with exactly 10  $\mu\text{L}$  each of the sample so-  
207 lution and standard solution as directed under Liquid Chro-  
208 matography <2.01> according to the following conditions,  
209 and determine the peak areas,  $A_T$  and  $A_S$ , of silodosin in  
210 each solution.

$$\begin{aligned} 211 & \text{Amount (mg) of silodosin (C}_{25}\text{H}_{32}\text{F}_3\text{N}_3\text{O}_4) \\ 212 & = M_S \times A_T / A_S \times V / 2500 \end{aligned}$$

213  $M_S$ : Amount (mg) of Silodosin RS taken, calculated on  
214 the anhydrous basis

215 *Operating conditions*—

216 Proceed as directed in the operating conditions in the  
217 Assay under Silodosin.

218 *System suitability*—

219 System performance: When the procedure is run with 10  
220  $\mu\text{L}$  of the standard solution under the above operating  
221 conditions, the number of theoretical plates and the  
222 symmetry factor of the peak of silodosin are not less than  
223 3000 and not more than 1.6, respectively.

224 System repeatability: When the test is repeated 6 times  
225 with 10  $\mu\text{L}$  of the standard solution under the above  
226 operating conditions, the relative standard deviation of the  
227 peak area of silodosin is not more than 1.0%.

228 **Containers and storage** Containers—Tight containers.

229 Storage—Light-resistant.

230 **Others**

231 Related substance A: Refer to it described in Silodosin.

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