

1 Minocycline Hydrochloride Granules

2 ミノサイクリン塩酸塩顆粒

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4 Minocycline Hydrochloride Granules contain not
5 less than 90.0% and not more than 110.0% of the
6 labeled potency of minocycline ($C_{23}H_{27}N_3O_7$:
7 457.48).

8 **Method of preparation** Prepare as directed under
9 Granules, with Minocycline Hydrochloride.

10 **Identification** To a quantity of Minocycline Hydrochloride
11 Granules, equivalent to 10 mg (potency) of Minocycline
12 Hydrochloride, add 625 mL of a solution of hydrochloric
13 acid in methanol (19 in 20,000), shake thoroughly,
14 and filter. Determine the absorption spectrum of the fil-
15 trate as directed under Ultraviolet-visible Spectrophotom-
16 etry <2.24>: it exhibits maxima between 221 nm and 225
17 nm, between 261 nm and 265 nm, and between 354 nm
18 and 358 nm.

19 **Purity** Related substances — Conduct this procedure
20 within 30 minutes after the preparation of the sample so-
21 lution. To a quantity of Minocycline Hydrochloride Gran-
22 ules, equivalent to 50 mg (potency) of Minocycline Hy-
23 drochloride, add 60 mL of the mobile phase, shake vigor-
24 ously, add the mobile phase to make 100 mL. Centrifuge
25 this solution, and use the supernatant liquid as the sample
26 solution. Perform the test with 20 μ L of the sample solu-
27 tion as directed under Liquid Chromatography <2.01>
28 according to the following conditions. Determine each
29 peak area by the automatic integration method, and calcu-
30 late their amounts by the area percentage method: the
31 amount of the peak of epiminocycline, having the relative
32 retention time of about 0.83 to minocycline, is not more
33 than 4.0%.

34 **Operating conditions**—

35 Detector, column, column temperature, mobile phase
36 and flow rate: Proceed as directed in the operating
37 conditions in the Assay under Minocycline
38 Hydrochloride.

39 Time span of measurement: About 2.5 times as long as
40 the retention time of minocycline, beginning after the
41 solvent peak.

42 **System suitability**—

43 System performance: Proceed as directed in the system
44 suitability in the Assay under Minocycline Hydrochloride.

45 Test for required detectability: To 2 mL of the standard
46 solution obtained in the Assay add the mobile phase to
47 make 100 mL, and use this solution as the solution for
48 system suitability test. Pipet 5 mL of the solution for
49 system suitability test, and add the mobile phase to make

50 exactly 100 mL. Confirm that the peak area of
51 minocycline obtained with 20 μ L of this solution is
52 equivalent to 3.5 to 6.5% of that with 20 μ L of the
53 solution for system suitability test.

54 System repeatability: When the test is repeated 6 times
55 with 20 μ L of the solution for system suitability test under
56 the above operating conditions, the relative standard
57 deviation of the peak area of minocycline is not more than
58 2.0%.

59 **Water** <2.48> Not more than 2.0% (4 g of powdered
60 Minocycline Hydrochloride Granules, volumetric titration,
61 back titration).

62 **Uniformity of dosage units** <6.02> Perform the test
63 according to the following method: Minocycline Hydro-
64 chloride Granules in single-dose packages meet the re-
65 quirement of the Content uniformity test.

66 To the total content of 1 package of Minocycline Hy-
67 drochloride Granules add water to disintegrate, shake
68 thoroughly, add water to make exactly 100 mL, and filter
69 through a membrane filter with a pore size not exceeding
70 0.45 μ m. Discard the first 10 mL of the filtrate, pipet V
71 mL of the subsequent filtrate, add water to make exactly
72 V' mL so that each mL contains about 20 μ g (potency) of
73 minocycline ($C_{23}H_{27}N_3O_7$), and use this solution as the
74 sample solution. Separately, weigh accurately an amount
75 of Minocycline Hydrochloride RS, equivalent to about 20
76 mg (potency), dissolve in water to make exactly 100 mL.
77 Pipet 5 mL of this solution, add water to make exactly 50
78 mL, and use this solution as the standard solution. Deter-
79 mine the absorbances, A_T and A_S , of the sample solution
80 and standard solution at 348 nm as directed under Ultra-
81 violet-visible Spectrophotometry <2.24>.

82 Amount [mg (potency)] of minocycline ($C_{23}H_{27}N_3O_7$)
83
$$= M_S \times A_T / A_S \times V' / V \times 1 / 10$$

84 M_S : Amount [mg (potency)] of Minocycline Hydro-
85 chloride RS taken

86 **Dissolution** <6.10> When the test is performed at 50
87 revolutions per minute according to the Paddle method,
88 using 900 mL of water as the dissolution medium, the
89 dissolution rates in 15 minutes of Minocycline Hydro-
90 chloride Granules is not less than 85%.

91 Start the test with an accurately weighed amount of
92 Minocycline Hydrochloride Granules, equivalent to about
93 20 mg (potency) of Minocycline Hydrochloride, withdraw
94 not less than 20 mL of the medium at the specified minute
95 after starting the test, and filter through a membrane filter
96 with a pore size not exceeding 0.45 μ m. Discard not less
97 than 10 mL of the first filtrate, and use the subsequent
98 filtrate as the sample solution. Separately, weigh accu-
99 rately an amount of Minocycline Hydrochloride RS,

100 equivalent to about 22 mg (potency), and dissolve in wa-
101 ter to make exactly 100 mL. Pipet 5 mL of this solution,
102 add water to make exactly 50 mL, and use this solution as
103 the standard solution. Determine the absorbances, A_T and
104 A_S , of the sample solution and standard solution at 348 nm
105 as directed under Ultraviolet-visible Spectrophotometry
106 <2.24>.

107 Dissolution rate (%) with respect to the labeled amount of
108 minocycline ($C_{23}H_{27}N_3O_7$)

$$109 = M_S / M_T \times A_T / A_S \times 1 / C \times 90$$

110 M_S : Amount [mg (potency)] of Minocycline Hydro-
111 chloride RS taken

112 M_T : Amount (g) of Minocycline Hydrochloride Gran-
113 ules taken

114 C : Labeled amount [mg (potency)] of minocycline
115 ($C_{23}H_{27}N_3O_7$) in 1 g

116 **Assay** Weigh accurately an amount of powdered Mino-
117 cycline Hydrochloride Granules, equivalent to about 50
118 mg (potency) of Minocycline Hydrochloride, add the mo-
119 bile phase, shake vigorously, and add the mobile phase to
120 make exactly 100 mL. Centrifuge this solution, and use
121 the supernatant liquid as the sample solution. Separately,
122 weigh accurately an amount of Minocycline Hydrochlo-
123 ride RS, equivalent to about 25 mg (potency), dissolve in
124 the mobile phase to make exactly 50 mL, and use this
125 solution as the standard solution. Then, proceed as di-
126 rected in the Assay under Minocycline Hydrochloride.

127 Amount [mg (potency)] of minocycline ($C_{23}H_{27}N_3O_7$)

$$128 = M_S \times A_T / A_S \times 2$$

129 M_S : Amount [mg (potency)] of Minocycline Hydro-
130 chloride RS taken

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

132 Storage—Light-resistant.

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