

## 1 **Functionality-related Characteristics of** 2 **Excipients Relevant to Preparations** <G9-1-181>

3 Functionality-related characteristics (FRC) of excipients  
4 are the physical and chemical properties of excipients which  
5 are closely relevant to the improvement of the usefulness of  
6 active pharmaceutical ingredients and preparations in the  
7 manufacturing process, storage, and use of the preparations.

8 As described in the General Notices for Preparations (6),  
9 excipients “must be pharmacologically inactive and harm-  
10 less in the administered amount”, and play roles “to increase  
11 the utility of the active substance(s) and preparation, to  
12 make formulation process easier, to keep the product quality,  
13 to improve the usability, and so forth.” In the monographs  
14 of excipients, specifications and test methods are prescribed  
15 for the main purpose of identifying substances and ensuring  
16 qualities.

17 FRC may be effective parameters for excipients to play  
18 the above roles, however, no criteria are set for the test  
19 methods since the FRC required for excipients depend on  
20 the purpose of the use and the formula of preparations and  
21 are different from the quality characteristics that are directly  
22 related to the safety and stability of excipients. In addition,  
23 the test methods of FRC described in this section do not  
24 limit the application of other appropriate test methods.

25 The FRC of Petrolatum and White Petrolatum, and the  
26 recommended test method for reference are shown below.

### 27 **Petrolatum, White Petrolatum: Test method for con-** 28 **sistency**

29 Petrolatum and White Petrolatum are purified mixtures of  
30 hydrocarbons obtained from petroleum, and are generally  
31 used as the base of semi-solid preparations such as oint-  
32 ments. Ointments are defined in the General Rules for  
33 Preparations 11.4. Ointments (3) as to “have a suitable vis-  
34 cosity for application to the skin”, and their hard-  
35 ness/softness, one of the rheological properties of the dos-  
36 age form, can be shown by measuring the consistency as a  
37 characteristic parameter. The test method to determine the  
38 consistency of Petrolatum and White Petrolatum according  
39 to Method 2 under Rheological Measurements for  
40 Semi-solid Preparations <6.16> is as follows.

41 (i) Apparatus Perform the test using a standard cone  
42 or an optional cone. The containers for the test are  
43 flat-bottom metal cylinders that are  $100 \pm 6$  mm in diameter  
44 and not less than 65 mm in height.

45 (ii) Procedure Place the required number of containers  
46 in an oven, and bring them and a quantity of test substance  
47 in a container with a cover to a temperature of  $82 \pm 2.5^\circ\text{C}$ ,  
48 pour the Petrolatum or White Petrolatum into one or more  
49 of the containers, filling to within 6 mm of the rim. Cool to

50  $25 \pm 2.5^\circ\text{C}$  over a period of not less than 16 hours, pro-  
51 tected from drafts. Two hours before the test, place the con-  
52 tainers in a water bath at  $25 \pm 0.5^\circ\text{C}$ . If the room temper-  
53 ature is below  $23.5^\circ\text{C}$  or above  $26.5^\circ\text{C}$ , adjust the tempera-  
54 ture of the cone to  $25 \pm 0.5^\circ\text{C}$  by placing it in the water  
55 bath. Without disturbing the surface of the substance under  
56 test, place the container on the penetrometer table, and low-  
57 er the cone until the tip just touches the top surface of the  
58 test substance at a spot 25 mm to 38 mm from the edge of  
59 the container. Adjust the zero setting and quickly release the  
60 plunger, then hold it free for 5 seconds. Secure the plunger,  
61 and read the total penetration from the scale. Make three or  
62 more trials, each so spaced that there is no overlapping of  
63 the areas of penetration. Where the penetration exceeds 20  
64 mm, use a separated container of the test substance for each  
65 trial. Read the penetration to the nearest 0.1 mm. Calculate  
66 the average of the three or more readings.