

## **TECHNICAL NOTE: GREASE DROPPING POINT MOV LONG LIFE**

**1. Introduction:** The dropping point of grease is measured as the adjusted temperature at which a drop of grease falls when tested under specified conditions. It is an indication of how well the grease retains its fluid components. By comparing the dropping points of the same grease after different times in service it can be used as a service life indicator or to show contamination. Similarly, if tested on samples from shipments, it can be used as one measure for quality assurance purposes.

There are two ASTM methods. D2265 uses an aluminum block for heating and D566 uses an oil bath. D2265 is preferred because the D566 has slightly worse reproducibility and it is not recommended by ASTM for use with bath temperatures above 288°C. Use only D2265 for MOV Long Life. The current version is D2265-15.

According to D2265 the dropping point is as follows; "9.7 When the first drop of material falls free of the cup orifice and reaches the bottom of the test tube, record both the temperature of the cup and of the oven to the nearest degree. Certain greases, for example, some simple soap compositions, or those containing some types of polymers can form a drop with a tailing thread which can hold until the drop reaches the bottom of the test tube. The temperature in the cup when the drop reaches the bottom of the test tube is recorded as the observed dropping point."

The dropping point to be reported is grease thermometer reading plus one third of the difference between thermometer reading and block temperature. For dropping points up to 304°C the procedure recommends a block temperature of 316°C.

### **1.1 Common Test Procedure Issues**

1.1 Low because ASTM D566 was used instead of D2265.

1.2 Low because the grease sample did not drop originally at a lower setting and batch/block temperature was raised and then there was a drop. This increases the test time and makes it more of an oil separation test. The results are not valid. Use a new grease sample in such cases and let the temperature stabilize.

1.3 With a stringy or tacky grease the end point is when the grease drop touches the bottom of the test tube not when it looks like the grease will drop.

1.4 Low because the observed dropping point was not adjusted for the block temperature reading.



58 Garnock Avenue  
 Toronto, ON, Canada M4K 1M2  
 Phone: 416 466-3144 toll free 888 442-5008  
 Fax: 416 466-3807 [www.fluidcenter.com](http://www.fluidcenter.com)

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Page 2 of 2

**2. Limits**

**2.1 Manufacturing, °F (°C)**

	<b>ACCEPTANCE</b>	<b>TYPICAL</b>	<b>REJECT</b>
<b>GRADE 0</b>	≥525 (274)	572 (300)	<525 (274)
<b>GRADE 1</b>	≥525 (274)	604 (318)	<525 (274)
<b>GRADE 2</b>	≥525 (274)	604 (318)	<525 (274)

**2. 2 Reject Limits 3rd Party**

ASTM D2265 precision statements valid 19 out of 20 times for measured dropping points ranging from 277- 316°C;

Repeatability (same operator, same sample) within 7°C  
 Reproducibility (different labs, same sample) within 12°C.

Consequently, a high and low can be different by 24°C (43°F).

	<b>ASTM D2265 °F (°C)</b>
<b>GRADE 0</b>	<482 (<250)
<b>GRADE 1</b>	<482 (<250)
<b>GRADE 2</b>	<482 (<250)

**3. Limitorque Specification:** For SMB actuators the dropping point must be above 316°F (157°C). MOV Long Life is well above this value.

**4. Significance:** The test is normally used to confirm that the correct grease was supplied. Calcium sulphonate complex greases tend to have very high dropping points.