INTER PLANT STANDARDIZATION – STEEL INDUSTRY		
IPSS	**SPECIFICATION FOR CALCIUM SULFONATE COMPLEX GREASE**	**IPSS:1-09-027-20 (First Revision)**
	No corresponding IS	IPSS:1-09-027-11

0. **FOREWORD**

0.1 This Inter Plant Standard was prepared by the Standards Committee on Oils and Lubricants, IPSS 1:9, with the active participation of the representatives of all the steel plants and established manufacturers of grease revised with first revision in **January, 2020.**

This standard was earlier adopted by the standard committee in June, 2011.

1. **SCOPE**

1.1 This Standard prescribes the requirements, methods of sampling and tests for Calcium Sulfonate complex Greases suitable for industrial purposes.

2. **GRADES**

2.1 The grease shall be of the following grades: NLGI Consistency (1, 2)

3. **TECNICAL REQUIREMENTS**

3.1 The grease shall be of smooth and homogeneous preparation, free from objectionable odour and visible impurities. It shall be free from resins, resin oil, rosinate, tar oil, grit and fillers such as clay, asbestos, talc, etc and from non-soap gelling agents like bentonite and silica gel.

3.2 **Composition**

3.2.1 Added mineral oil used to formulate grease shall comply with the following requirements:

S.No.	Characteristics	Requirement	Method of test, Ref to (P:) of IS 1448
1	Kinematic Viscosity In cst at 40 deg C	220-240 460 +10	P:25 (1976)
2	Flash point, °C(COC), (Min).	220	P:69 (2013)
3	Viscosity Index (min)	90	P:56 (2013)

3.3 The material shall meet the technical requirements as given in Table-1.

3.4 **Keeping Quality**

The keeping quality of the material will be such that when stored in original sealed containers under normal conditions, it shall retain the properties given in the specification for not less than one year from the date of manufacturer.

4. **PACKING AND MARKING**

4.1 **Packing**

The material shall he packed in metal or any other suitable containers as agreed to between the purchaser and the supplier. The container shall be securely closed.

Or

The packing shall be done in new and sound steel drums/barrels of 180 kg nominal capacity conforming to IS 13997:1994 `Specification for drums large open top'. The drums/barrels shall be properly sealed against water and other contaminants.

4.2 **Marking**

The containers shall be marked with the following:

a) Indication of the source of manufacture;
b) Name, type and Grade of the material;
c) Net mass of the material;
d) Date of manufacture;
e) Recognized trade-mark, if any; and
f) Indentification in code or otherwise to enable the lot of consignment to be traced back.
g) Standard mark

5. **SAMPLING**

5.1 The representative samples of the material shall be drawn as prescribed in IS 1447 (Part 3):1992.

Table 1 : REQUIREMENT FOR CALCIUM SULFONATE COMPLEX GREASE				
		REQUIREMENT FOR		
S. No	Characteristics	NLGI 1	NLGI 2	Test Method
1	Type of Thickener	Calcium Sulphonate Complex		
2	Worked penetration at 25+0.5°C			ASTM D 217-2019
	a) 60 double strokes	310-340	265-295	
	b) 100000 double strokes	30 max	30 max	
3	Dropping point, °C, Min	280 min	280	ASTM D 2265 -2015
4	Copper strip corrosion @100°C, 24 hrs	Negative	Negative	IP 112 -2015
5	Resistance to water Wash Out, at 80°C, % loss by mass, Max	5.0	5.0	ASTM D 1264 - 2018
6	Oxidation stability (100h), drop in pressure after 100 hrs, psi, max	10.0	10.0	ASTM D 942-2015
7	Leakage and deposit forming tendencies (wheel bearing test at 113° C/163)			ASTM D 1263 - 1999
	a) Leakage by mass, gm, Max	8.0	5.0	
	b) Deposit in wheel bearing races or rollers	Nil	Nil	
	c) Evidence of abnormal changes in consistency or structure of material	Nil	Nil	
	d) Indication of dry running of races	Nil	Nil	
8	Emcor rust test, Max	0,0	0,0	IP 220-2017
9	Roll stability test, Penetration change , after 16 hrs, %, Max	10.0	10.0	ASTM D 1831-2019
10	Four ball weld load, kg, Min	280	355	IP 239 -2014
11	Wear scar dia, mm,20kg, max at 1800 rpm, 55 °C, 1 hr, min	0.6	0.60	ASTM D 2266 -2015
12.	Elastomer Compatability			ASTM D 4289 - 2014
	Vol Change, percent	← - -5 to + 30 →		
	Hardness change, durometer-A points	← - -15 to + 2 →		
13.	Oil separation in storage condition, max	5%		ASTM D 1742 - 2018
14.	Oil separation at elevated temperature	6.0	5.0	ASTM D 6184 - 2017