ST-28

IND/ME/989 (Prov)

Silicon Grease

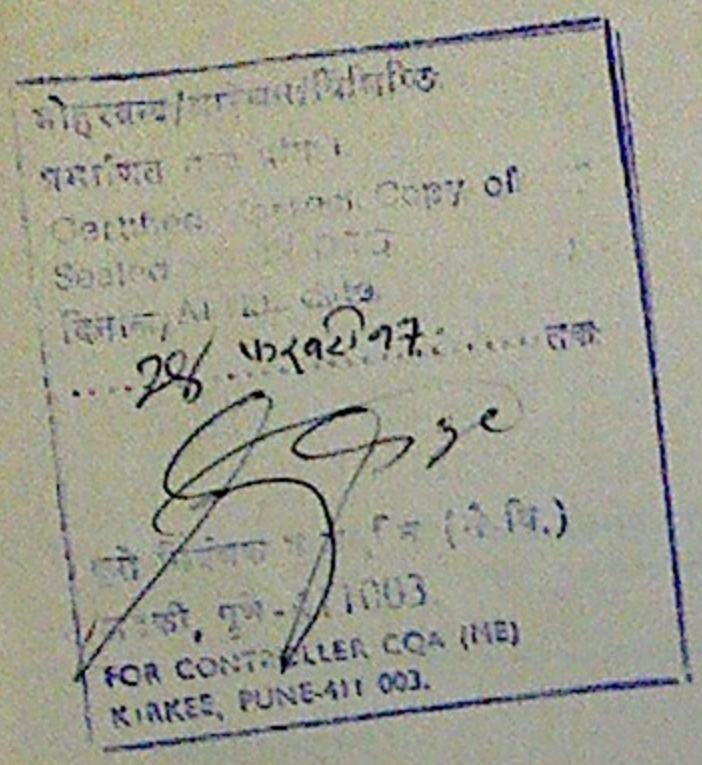
ISI-28

ST-28

DC No 3414-ME
14.11.96.

DC 3545-ME
dt.10-12-98

DC 3466-ME
dt. 22-9-97.



IND/ME/989 (PROV)

SILICON GREASE

Metro Ark silicone 17 compound

CONTROLLERATE OF QUALITY ASSURANCE

(MILITARY EXPLOSIVES)

AUNDH ROAD, KIRKEE PUNE - 411 003.

AMENDMENT RECORD

AMENDMENT DC NO.	DATE	AUTHORITY LETTER	CLAUSES AFFECTED	REMARKS

C O N T E N T S

0. FOREWORD

0.1 This specification has been prepared by the Controllerate of Quality Assurance (Military Explosives) Aundh Road, Kirkee Pune - 411 003.

0.2 For additional copies or any other enquiry regarding this specification, reference should be made to the Quality Assurance Authority i.e.CQA (ME) Aundh Road, Kirkee Pune - 411 003.

1. SCOPE

1.1 This specification is meant to govern manufacture, supply and Quality Assurance of Silicone grease.

1.2 The material is suitable for greasng of lids, threads , 'O' rings etc. in various ammns like carrier ie 155mm smoke shells, Mine APNM-14 etc. . The material is also suitable for use in detonator 356 mg , in the assembly of 105 FSAPDS, 120mm and 125mm FSAPDS Ammn.

2. RELATED SPECIFICATIONS/DOCUMENTS

2.1 The related specifications/documents as mentioned in clause 2.2 are those applicable at the date of publication of this specification. It is manufacturer's/contractors responsibility to confirm their current applicability and to obtain from CQA (ME) Aundh Road, Kirkee Pune 411 003 information concerning any change that may be necessary due to cancellation, replacement or supersession of any of these specifications/documents.

2.2 The following specifications have been referred to in the preparation of this specifications.

IS 138-1981 - PAINT RFU MARKING

IS 101 -

2.3 Copies of this specification and of related specifications are obtainable on payment basis as follows :-

IND/ME - The Controllerate of Quality Assurance (Military Explosives) Aundh Road, Kirkee Pune - 411003.

IS Specification - The Bureau of Indian Standards Manak Bhavan, 9, B.S. Zafar Marg, NEW DELHI - 110002.

3. MATERIAL/FINISH

3.1 It is a translucent grease having consistency of petroleum jelly.

4. MANUFACTURE

4.1 The Sicone grease shall be manufactured by a process which has received authoritative approval. The Quality Assurance Officer shall be informed regarding the process used and shall be informed with prior notification of any proposed deviation therefrom. All the deviations from the approved process, however sight shall be recorded immediately and all the material affected shall be set aside pending the decision of the QA Officer/ QA Authority.

4.2 The shelf life of the material is 18 months from the date of shipment. [It does not necessarily mean that the utility value has ended in general silicone lubricating materials are known not to harden for many years].

5. TENDER SAMPLE

5.1 The Contractor/Manufacturer shall submit a tender sample of 250 g in duplicate free of charge from the same batch of manufacture and conforming to this specification.

6. QUALITY ASSURANCE

6.1 INSPECTION

6.1.1. The Siicone grease and the packages in which it is packed shall be subject to Quality Assurance and to the approval of QA Officer/QA Authority.

6.1.2 Samples of the material and of the packages may be taken from any portion of the batch/lot of manufacture.

6.1.3 If on examination, any sample be found not to conform to this specification, the whole batch/lot shall be rejected.

6.1.4 The foregoing provisions shall equally apply to the prime contractor and sub contractors, if any.

6.2. SAMPLING

6.2.1 The representative sample of 250 g shall be drawn from each package selected from the batch/lot. The number of samples to be drawn from the batch/lot shal be as follows.

Lot No	NO of containers to be selected
3 to 50	3
51 to 200	4
201 to 400	5
401 to 650	6
651 and over	7

6.3 TEST REQUIREMENTS

6.3.1 The samples taken from any portion of the batch/lot shall conform to the clause 3.1 above and in addition shall satisfy the following test requirements.

SL NO.	TEST	PASSING STANDARD	TEST METHOD
1.	Colour	Light grey/white	-
2.	Specific gravity at 25 °C	1.0	Appendix 'A'
3.	Flash Point °C	315	ASTM D-1437-64
4.	Bleed % at 200 °C for 24 hours. Max	10	Appendix 'B'
5.	Evaporation % at 200 °C, for 24 hours Max	5	
6.	pH of water extract	Min 5.5 Max 7.5	Method 5(b) of JSO 0112:1997
7.	Water soluble chlorides as Nacl % Max	0.05	Method 7(b) of JSO 0112:1997
8.	Water soluble Sulphates as Na_2SO_4 % Max	0.1	Method 8 of JSO 112:1997

9. (4)	Compatibility with explosives	shall be compatible			Method by CQA(ME)
10 (4)	Penetration at 0 25 C	(60 double) (strokes)	unworked	175-21	ASTM D-217
			Worked	260 Max	

7. SUPPLIER"S QUALITY ASSURANCE OF STORES/CONSIGNMENT

7.1 Before tendering the store for Quality Assurance, the supplier shall carry out a thorough inspection of each delivery to satisfy himself that the store fully conforms to this specification and shall render a certificate to that effect to QA Officer/QA Authority.

8. WARRANTY

8.1 The store supplied against the contract shall deem to have been warranted against defective material and performance by the manufacturer/contractor for a period of 6 months from the date of receipt of the material at the consignee"s end and if during this period any of the stores supplied is found defective, the same shall be replaced by the manufacturer/contracter free of charge at the consignee's premises.

9. PACKING

9.1 The Silicone grease may be packed in polythene bag having film thickness 0.13mm minimum and then in polythene jars having capacity of 5 Kg .

10. MARKING

10.1 All the packages containing the material shall be durably and legibly marked with the following details.

a) Nomenclature and specification number of the material.

b) Name and address of the consignee.
c) A/T or S.O. no and date.
d) Consignment number.
e) Lot/batch no. and date of manufacture.
f) Gross and net mass.
g) Consecutive number of package and total number of packages in the consignment.
h) Date of supply.
i) Contractor's initials or recognised trade mark.

10.2 In addition to above the QA officer/QA authority may suggest some more marking/identification suitable at the time of inspection.

10.3 The paint used for marking shall conform to IS 138:1981.

11. DEFENCE STORES CATALOGUE NUMBER.

11.1 The defence stores catalogue number alloted to this store is ..... .

12. SAFETY OF OPERATIONS

12.1 Nothing in this specification shall relieve the manufacturer/user/contractor of his responsibility for the safety of his operations during manufacture, handling, storage and transport.

13. SUGGESTIONS FOR IMPROVEMENT

13.1 Any suggestion for improvement in the this document shall be forwared to the controller, CQA(ME), Aundh Road, Kirkee, Pune 411003.

(V R SONONE)

CONTROLLER

CQA(ME), Aundh Road

KIRKEE, PUNE - 411003

APPENDIX 'A'

METHOD OF DETERMINATION OF SPECIFIC GRAVITY

Apparatus :- 1) specific gravity cup 100ml capacity as per IS 101 Part I / Sec 7 1987
2) spatula

Method :- Take ceen specific gravity cup and weigh alongwith the lid (M1). Fill the cup with distilled water and weigh (M2). Remove the water , dry the cup and fill it with silicone grease in such away that there should be no airbubble. Weigh it again (M3).

$$\text{Specific gravity of water} = \frac{M2 - M1}{100}$$

$$\text{Specific gravity of grease} = \frac{M3 - M1}{M2 - M1}$$

APPENDIX 'B'

METHOD FOR DETERMINATION OF BLEED AND EVAPORATION

Apparatus :- Beaker, Bleed cone(sketch attached), stand, oven, supported thin rod, spatulas.

PROCEDURE :-

1) All apparatus must be cleaned & dried.

2) Weigh the dried beaker (M1).

3) Weigh beaker, stand & cone together (M2).

4) Take the cone & start filing it with about 10g of silicone grease caefully. There should not be any airgap.

5) Put the cone inside the beaker with the help of stand .

6) Weigh the beaker with cone and stand and record as (M3).

7) After weighing keep the beaker in the oven maintained at 200° C for 24 hours.

8) Take out the beaker & cool in a desiccator.

9) Weigh the beaker and record as (M4).

10) Now take out the stand & cone from the beaker & gently tap the cone inside the beaker & keep aside.

11) Then weigh the empty beaker which contains bleeded oil of the sample & record it as M5.

$$\% \text{ Bleed} = \frac{(M5 - M1)}{(M3 - M2)} \times 100$$

$$\% \text{ Evaporation} = \frac{(M3 - M4)}{(M3 - M2)} \times 100$$

Where M1 = Mass of empty beaker

M2 = Mass of beaker + cone + stand

M3 = Mass of beaker + cone + stand + sample

M4 = Mass of beaker + cone + stand + sample (After drying)

M5 = Mass of only beaker after drying .

ASTM D.1437.64

FLASH POINT BY PENSKY MARTINS TESTER

This method of test is intended for determining the flash point of solvent type liquid wax product and other viscous material.

The tester shall have the same component parts and the same diamensions as prescribed in the specifications for Pensky Martins closed Flash tester (ASTM- Designation K- 134) in addtion the apparatus shall be equipped with a motor to provide stirring at 300 rpm in a clock wise direction (upward thrast).

PROCEDURE :-

a) Clean the cap and accessories before starting the test.
b) Shake the sample to produce homogenity and fill the cap with sample to the level indicated by the filling mark.
c) Place the lid with cup and set the latter in the stove. Insert the proper thermometers the temperature of the sample shall not be less than 21 C nor more than 26.7 C.
d) Light the test flame and adjust it so that it is 3.97 mm in diameter.
e) Apply heat so that the temperature of the sample rises at the rate of 5 to 6 degree cent. grade perminite. Stir the sample at the rate of 60 recolutions per minute apply the test flame at each tempeature reading Which is a mutiple of one degree cent. up to 105 degree centigrade for temperature range above 105 degree cent. grade apply the test flame at each temperature reading which is a multiple of 3 degree cent. grade the first application of the test flame being made at a tempetature at least 18 degree cent. grade below the actual flash point.

Apply the test flame by operating the device controlling the shutter and test flame burner so that the flame is lowered in 0.5 second eft in its lowered positions for one second, and quickly raised to it high position . Discontinue the stirring during the application of the test flame.

The flash point is taken as the temperature read on the themometers at the time of the flame application that causes distind flash in the interior of the cup.The flash must not be confused with bluish halo that some times surrounds the test flame for the applications preceding the one that causes the actual flash.

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(12)

(2/2)

FTM（燃焼試験方法）

番号：C-0311

名称：
粘油度・蒸発量試験方法（MIL法）

3枚中 3頁

制定日：1976. 6.10　改訂日：1986.10.16　改訂日：1994. 2. 4

試験装置組立図

（単位mm）