

NOTE

This leaflet is one of a set including :

- Leaflet No. 563 : Fittings provided in coaches in the interest of hygiene and cleanliness.

1 - PURPOSE

1.1 - Scope of application

This specification is applicable to the supply of toilet soap in cake form for use in the SAPOR dispensers fitted in Railway vehicles.

1.2 - Reference documents

Reference is made in this specification to the following documents :

- ISO/456 - 1973 : Analysis of soaps - Determination of free caustic alkali
- ISO/672 - 1968 : Analysis of soaps - Determination of moisture and volatile matter
- ISO/673 - 1968 : Analysis of soaps - Determination of ethanol - insoluble matter
- ISO/685 - 1975 : Analysis of soaps - Determination of total alkali content and total fatty matter content
- ISO/696 - 1968 : Surface active agents - Measurement of foaming power
- ISO/R 935 - 1969 : Animal fats - Determination of solidification point of fatty acids (titre)
- ISO/1067 - 1974 : Analysis of soaps - Determination of unsaponifiable, unsaponified and unsaponified saponifiable matter.

2 - PROPERTIES**2.1. - Constituent matter****2.1.1. - Fatty matter**

The fatty matter used in the manufacture of soap in cake form for use in SAPOR dispensers is of animal or vegetable origin. Fish oils may not be used.

The total fatty matter used must display the following properties :

- solidification point, determined according to the instructions in § 4.1.4.1. :

≥ 39° C

- neutralisation index, determined according to the instructions in § 4.1.4.2. :

≥ 209

2.1.2. - Insoluble matter

The addition of ethanol-insoluble matter is only permitted in the proportions indicated in table 1 under § 2.2.

The addition of saponin is prohibited.

2.2 - Physical and chemical properties of toilet soap in cake form for use in distributors.

The physical and chemical properties of the soap used in dispensers are defined in table 1 below :

TABLE 1

Appearance	Fine, pre-dried soap in cake form						
Colour	The soap must be white or slightly ivory in colour, unless otherwise indicated on the order or working documents						
Odour	Light, pleasant, fresh, non-clinging perfume. Deodorising agents permitted under national regulations may be used. The addition of oil of mirbane (nitrobenzene) as a perfuming agent is prohibited. The soap should not develop any unpleasant odour after 6 months in storage.						
Size (in millimetres)	As shown in the diagram appended.						
Theoretical nominal weight of cake (in grammes)	40						
Foaming: Minimum power § 4.1.4.3: (in ml)	<table> <tbody> <tr> <td>after 30 secs</td> <td>540</td> </tr> <tr> <td>after 3 mins</td> <td>520</td> </tr> <tr> <td>after 5 mins</td> <td>500</td> </tr> </tbody> </table>	after 30 secs	540	after 3 mins	520	after 5 mins	500
after 30 secs	540						
after 3 mins	520						
after 5 mins	500						
Grinding test in SAPOR dispenser of soap in delivery condition § 4.1.4.4.	Maximum of 40% plus mesh after passing the ground soap through a sieve with 0.50 mm square mesh.						
Minimum weight of total fatty matter per cake of soap (in grammes) § 4.1.4.5.	32						

Resin acid content of total fatty matter (% in weight) §4.1.4.5	≤ 1
Maximum content of saponified and unsaponifiable neutral fats (% in weight) § 4.1.4.5.	≤ 0.5
Maximum content of free caustic alkali (expressed as NaOH) (% in weight) §4.1.4.5	0.05
Maximum water content per cake of soap in delivery condition (% in weight) §4.1.4.5.	6
Maximum content of ethanol-insoluble matter (% in weight) § 4.1.4.5.	0.5

3 - MANUFACTURE

3.1 - Manufacture of soap

No specific conditions are stipulated for the manufacture of the soap, provided that the fatty matter is completely saponified and the properties of finished product comply with the requirements listed above.

The soap may only be supplied by manufacturers whose products have received prior approval from the purchasing Railway.

4 - INSPECTION

4.1 - Inspection of cakes of soap

4.1.1. - Presentation

4.1.1.1. - Condition of cakes of soap on presentation

The cakes of soap shall be presented in delivery condition.

4.1.1.2. - Batching

A batch comprises the cakes of soap produced during the same manufacturing run.

4.1.1.3. - Notification of submission

The manufacturing supervisor of the purchasing Railway shall be notified of submission of goods by means of a relevant document, drawn up by the supplier and signed by the managing director of the manufacturing factory or his deputy, indicating :

- the date of submission,
- the order references,
- the composition of the batches submitted, stipulating the quantity of cakes of soap in each batch,

- the results of the inspections and tests to be undertaken by the supplier at the outset, according to the instructions contained in this specification or in agreements concluded between the manufacturer and the purchasing railway.

4.1.2. - *Type and extent of tests and trials*

The properties of the cakes of soap shall be tested as stipulated in §2.

The number of test series to be carried out varies according to the size of the batches, as shown in Table 2 below :

TABLE 2

Size of batches	Number of test series
0 - 10,000 cakes	1
10,001 - 25,000 cakes	2
25,001 - 50,000 cakes	3
over 50,000 cakes	4

4.1.3. - *Selection and preparation of samples*

4.1.3.1. - *Selection*

The samples to be used in the tests are selected at random from each batch submitted. A minimum of 6 cakes of soap must be selected for each test series.

Where samples have to be sent to a laboratory for tests, they must be packed in a hermetically sealed container and labelled in indelible ink. In all other cases they must be prepared immediately for testing in the appropriate manner.

The samples and the packs from which they were selected must retain the labels and references marked on them by the purchasing Railway's representative.

4.1.4. - *Execution of tests and trials*

4.1.4.1. - *Solidification point test*

a) *Reagents*

1) Sulphuric acid

One part of concentrated sulphuric acid (specific density = 1,84) diluted in 4 parts of distilled water.

2) Sodium chloride (10% solution : 10 g of sodium chloride diluted in 100 cm³ of distilled water).

3) Anhydrous sodium sulphate.

b) *Preparation of fatty matter*

Approximately 60 g of grated soap are weighted in a large crucible.

One litre of distilled water is added and the mixture boiled. The flame is extinguished as soon as a solution is obtained.

The water lost in evaporation is replaced by an equivalent quantity of cold water, and 70 cm³ of diluted sulphuric acid (reagent 1) are carefully added.

Traces of undecomposed soap should be avoided on the sides and edge of the crucible.

- The crucible is then placed in a boiling water bath until the fatty matter is freed and surfaces to form a layer of fat.

The fatty matter is then washed in 500 cm³ of boiling sodium chloride solution (reagent 2) and the solution drawn off as completely as possible. This process is repeated.

The fatty matter is then siphoned into a dish, the anhydrous sodium sulphate (reagent 3) is added and the mixture is filtered using a dry filter.

c) Determination of the solidification point of the total fatty matter

The solidification point of the fatty matter is determined according to the method contained in ISO Recommendation 935-1969.

The results required are indicated in § 2.1.1.

4.1.4.2. - Neutralisation index test

The neutralisation index is measured at the same time as the fatty matter content is determined, according to the instructions contained in ISO Standard 685 - 1975.

The volume of sodium ethanol hydroxide solution used to neutralise the fatty matter ethanol solution is noted, as instructed in ISO Standard 685-1975 :

where

- m, the weight in grammes of dry soap obtained when the total fatty matter is determined,
- n, the volume of sodium ethanol hydroxide solution used, in cm³,
- T, exact normality of the above solution.

IN = neutralisation index of the fatty matter,

$$IN = \frac{56 \times n \times T}{m - (n \times T \times 0.022)}$$

The results required are indicated in § 2.1.1.

4.1.4.3. - Foaming-power test

a) Preparation

200 cm³ of distilled water is added to $1 \pm 0,01$ g of pre-dried grated soap. The mixture is warmed to solution and poured into a 1000 ml volumetric flask. The mixture is cooled and the 1000 ml completed with distilled water.

b) Method

The test is carried out with the apparatus and according to the method used in ISO Standard 696 with the following exception :

- Test temperature = $+ 20^{\circ} \text{C} \pm 2^{\circ} \text{C}$.

The results obtained must conform to those indicated in Table 1 under § 2.2.

4.1.4.4. - SAPOR dispenser grating test

5 g of dry soap powder, grated from a piece of soap in a SAPOR dispenser (1) are used in this test.

(1) August BELZ, APPARATEBAU, FRIEDRICHSHAFEN and August BELZ, METALLWARENFABRIK GOLDÄCH, Switzerland.

The predried powder soap thus obtained is passed through a sieve with 0,50 mm square mesh.

The results obtained must conform to those indicated in Table 1 under § 2.2.

4.1.4.5. - Test of content and chemical properties

The properties are tested in accordance with the instructions contained in the ISO Standards listed below :

- 456 (determination of content of free caustic alkali),
- 672 (moisture),
- 673 (determination of ethanol-insoluble matter),
- 685 (determination of total fatty matter).

The type and proportion of fatty acids in relation to the total fatty matter and the content of resin acids are determined by standard laboratory procedure.

The results required are indicated in Table 1 under § 2.2.

4.1.4.6. - Test of content of saponified and unsaponifiable neutral fatty matter.

The content of saponified and unsaponifiable neutral fatty matter is determined in accordance with the method contained in ISO Standard 1067 - 1974.

The results obtained must conform with those indicated in Table 1 of § 2.2.

4.2. - Conclusions

The corresponding batch may be rejected should any of the results of these tests and trials fail to meet the conditions stipulated.

5. DELIVERY

5.1. - Packaging

The soap shall be packaged in watertight boxes suitable for transportation, unless otherwise stipulated.

5.2. - Labelling

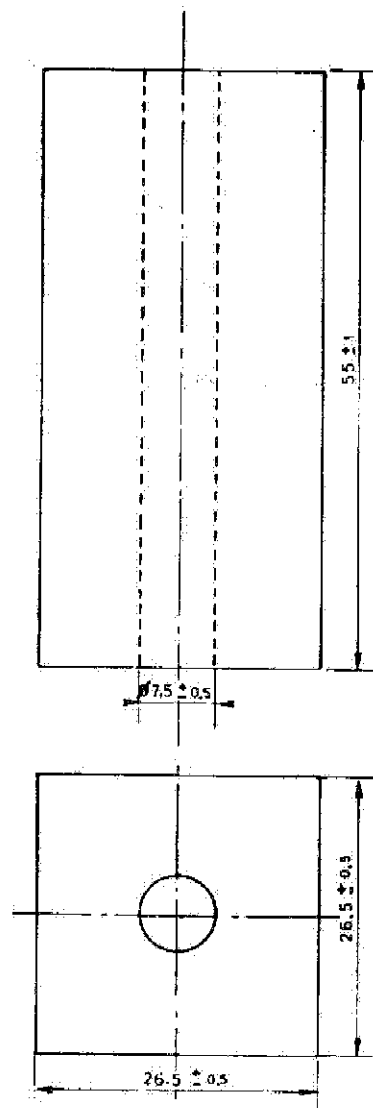
Every package shall carry a label with the following information :

- manufacturer's trade mark,
- number of items,
- order references and date
- date of manufacture

5.3 - Guarantee period and respect thereof

The soap is guaranteed for a period of 6 months from the date of delivery. If stored appropriately in a dry place, it should show no signs of deterioration during this period. In particular, no cracks or marks should appear on the soap, nor should it develop any unpleasant odour.

SIZE OF CAKES OF SOAP (in mm)



APPLICATION

1 January 1979.

All Members of the International Union of Railways.

RECORD REFERENCES

Heading under which the question has been dealt with :

- *Question 5/Sa/Fic.* - Technical specification for the supply of soap in cake form for use in SAPOR dispensers.

(Traction and Rolling Stock Committee - Brussels, June 1978).