

TGL-14/2-01

Rubber Insulations

1. Rationale

Rubber insulations are used as components in solar heating systems and chillers in buildings and offices to save energy. However, in the production of rubber insulations accelerators and other substances may be used which, when combined, can generate Nitrosamines. When exposed to heat, Nitrosamines can evaporate into the surrounding air. Nitrosamine is a known carcinogen, and is highly toxic to the liver. Fire-proof materials with Halogen compounds may also be used. These Halogens are the source of Dioxins, also a known carcinogen. Furthermore, when used rubber insulations are disposed of by burning, Nitrosamines and Dioxins are released into the surrounding air.

As a result, Green Label requirements specify that rubber insulations that bear the Green Label must not contain halogen compounds and use limited amounts of accelerators that can generate Nitrosamine. This measure can not only help to reduce air pollution, but also reduces potential harm to consumer's health.

2. Category Definitions

Rubber insulation is limited to heat insulations of the fiberglass and polymer types such as rubber and plastic resins, which are used in industries and in buildings such as offices, houses, and commercial buildings.

3. Definitions

The term '*rubber insulations*' here refers to materials or products made from rubber or rubber mixed with other polymers that are used to reduce heat transfer.

4. General Requirements

4.1 The product must pass all the tests specified in ASTM C 534: Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form. The product must also pass two additional tests, below:

Test	Property	Requirements	Testing Methods
1	Ozone resistance	No breaking or cracking	ASTM D 1171, ASTM D 1149
2	Inflammability	Not flammable v-1	UL 94, ASTM D 635

4.2 The following information must be specified: that the product has passed tests regarding smoke, the amount of smoke generated, and the testing method that is in accordance with international standards.

4.3 An instruction manual must be provided, detailing appropriate and proper handling of the rubber insulations both at the set up stage and in the usage stage. The manual must also include information on safety and the appropriate use environment for the product.

4.4 Production, transportation, and waste disposal must be in accordance with all applicable government acts and regulations.

5. Product Specific Requirements

5.1 The product must not use raw materials with Halogen compounds. Contaminants of no more than 0.5 percent is allowed.

5.2 Nitrosamine compound residues in the product must be no more than 0.01 ppm.

6. Testing Methods

6.1 Testing for the characteristics of rubber insulations shall be in accordance with the methods specified in ASTM C 534.

6.2 The manufacturer shall produce a manual of instructions for the proper and appropriate use of rubber insulations, both at the set up stage and usage stage. The manual shall also include safety information, and indicate the appropriate environment for use of the product. This manual shall be submitted to Green Label officers.

6.3 Testing for Nitrosamine content shall be in accordance with the AOAC Official Method, or other equivalent tests.

6.4 Testing for Halogens such as Bromides and Chlorides in the product shall be in accordance with methods specified in JIS K 105 and JIS K 107 respectively, or ASTM D 3566 or other equivalent standards.

Note: The manufacturer shall submit, to Green Label officers, test results from the following laboratories

- 1) Government or State-enterprise laboratories or
- 2) Private laboratories or laboratories associated with educational institutions, which have been certified to be in compliance with the general requirements for the competence of testing and calibration laboratories, TIS 17025 (ISO/IEC 17025).

All test results and certificates submitted as part of the application for Green Label shall be no more than 6 months old on the date of application submission.