



**MATERIAL
SAFETY
DATA SHEET**

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Identification of the Substance/Preparation

Substance or preparation trade name: Stainless Steel Bristle Wire Brushes

Composition

Substance: Iron alloy with 10.5 – 30% Cr max. 38% Ni max. 11% Mn max. 8% Mo

Other elements may be present, such as Si, Cu, Ti. These are not classified as hazardous, or are below the concentration levels for classification of these alloys as hazardous.

Substance: Wood (not classified as hazardous)

Hazards Identification

Stainless steels contain nickel as an essential alloying element. Nickel is classified in EC Directive 67/548/EEC as a suspect carcinogen (category 3 – R40) and as a skin sensitiser (R43). The classification rules of EC Directive 99/45/EC dictate that any preparations with equal to or more than 1% content of nickel must automatically be classified as suspect carcinogens (R40). Stainless steels do not cause nickel sensitisation by prolonged skin contact in humans. Nevertheless, all stainless steels with 1% or more nickel are classified as skin sensitisers.

Specific hazards: There are no hazards of concern for man or the environment from stainless steels in the forms supplied. However, if an individual is already sensitised to nickel, prolonged skin contact with a few types of stainless steel may result in an allergic dermatological reaction. See toxicological section for more information. No carcinogenic effects resulting from exposure to stainless steels have been reported, either in epidemiological studies or in tests with animals. Dust and fume may be generated during processing e.g. in welding, cutting and grinding. If airborne concentrations of dust and fume are excessive, inhalation over long periods may affect workers' health, primarily of the lungs.

First Aid Measures

Not applicable to stainless steels in the massive form. Inhalation of dust and/or fume from grinding, cutting and welding operations is unlikely to generate the need for specific first aid.

Firefighting Measures

Stainless steels are not combustible. There are no special hazards or precautions associated with stainless steels if in the vicinity of a fire.

Accidental Release Measures

N/A

Handling and Storage

There are no special technical measures involved for handling. Normal precautions should be taken to avoid physical injury from sharp edges.

Exposure Controls

Personal protection: In accordance with European and national health and safety regulations, it is necessary to assess the need for personal protection equipment and appropriate approved respiratory protection should be provided for those workers at risk of inhalation. Suitable hand and eye protection should be worn.

Physical and Chemical Properties

Appearance:	Solid; metallic grey, ranging from dull to bright polished. Occasionally supplied with oxidised, blue/black surfaces.
Odour:	Odourless
Water solubility:	Insoluble
Melting:	1370°C - 1520°C
Density:	7.7-8.1 kg/dm ³
Thermal expansion (RT to 100°C):	10-16 x10 ⁻⁶ m/m°C
Thermal conductivity (RT):	12-30 W/m°C

Stability and Reactivity

Stainless steels are stable and non-reactive under normal ambient atmospheric conditions. May react in contact with strong acids to release gaseous acid decomposition products, e.g. hydrogen, oxides of nitrogen.

Toxicological Information

Stainless steels may contain nickel, which has been classified in EC Directive 67/548/EEC as a suspect carcinogenic substance, Category 3 (i.e. "causing concern for man but available information is not adequate for making a satisfactory assessment"). The exposure route of concern is inhalation. These stainless steel products are in massive form, not capable of being inhaled. The requirements of EC Directive 99/45 EC are such that all mixtures, solutions and alloys with more than 1% nickel must be classified in the same way as nickel itself, by default. There is no direct evidence of carcinogenic effects of stainless steels in man, nor indirect evidence from animals tested by relevant routes, i.e. inhalation or ingestion. In other studies, using non-relevant routes in animals, alloy with up to 40% nickel caused no significant increase in cancer. During mechanical working, flame cutting or welding, stainless steel dust, or fumes containing complex or mixed oxides (spinels) of its constituents, may be formed. Over long periods, inhalation of excessive airborne levels may have long term health effects, primarily affecting the lungs. However, studies of workers exposed to nickel powder and dust and fumes generated in the production of nickel alloys and stainless steels have not indicated a respiratory cancer hazard. Welding and flame cutting fumes may contain hexavalent chromium compounds. Studies have shown that some hexavalent chromium compounds can cause cancer. However, epidemiological studies amongst welders indicate no extra increased risk of cancer when welding stainless steels, compared with the slightly increased risk when welding steels that do not contain chromium.

Dermatological Toxicity

Nickel is classified as a skin sensitiser. It causes skin sensitisation in susceptible individuals through prolonged intimate contact with the skin (e.g. wearing of jewellery). The requirements of EC Directive 99/45/EC are that all mixtures, solutions and alloys with 1% or more of nickel must, by default, also be classified as skin sensitisers. Numerous patch tests have established that most stainless steels do not cause sensitisation. However, studies have shown that, in some individuals already sensitised to nickel, close and prolonged skin contact with the re-sulphurised.

Ecological information

No known harmful effects. No special precautions are required.

Disposal Considerations

Surplus and scrap (waste) stainless steel is valuable and in demand for the production of prime new stainless steel. Recycling routes are well-established, and recycling is therefore the preferred disposal route. Disposal to landfill is not harmful to the environment, but it is a waste of resources and therefore less desirable than recycling.

Transport Information

Stainless steels with a specified nickel content less than 1% are not classified "as dangerous for supply" under EC Directive 67/548/EEC. Stainless steels containing 1% or more of nickel are classified in the same way as nickel. However, in recognition of their essentially non-hazardous nature, stainless steels in the massive form are not required to be labelled as hazardous.

Regulatory Information

None

Other Information

None