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354 PEQUOT AVENUE  
SOUTHPORT CT 06890 USA  
Tel: 203-259-1615 Fax: 203-255-7908  
Toll-Free: 800-243-0052  
sales@jelliff.net  
WWW.JELLIFF.COM

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## Data Safety Sheet

Date of Issue: June 1, 2018

### **1 Designation of Manufacture and of the Company**

- Manufacture:** nickel containing alloys
- Trademarks:** Alloy 45
  
- Manufacturer/Supplier:** Jelliff Corporation  
354 Pequot Ave  
Southport, CT 06890 USA
  
- Phone: 203-259-1615  
Fax: 203-255-7908
  
- Information via:** Supplier  
**In case of emergency:** phone: 203-259-1615

### **2 Composition / Details on Constituents**

Nickel, as element of an alloy containing more than 1 mass % nickel. The alloy is manufactured according to 88/379/EWG.  
CAS-No 7440-02-0, Nickel  
EINECS-No 2311114  
EG-No 028-002-00-7

### **3 Potential Dangers**

- designation of danger:** Xn less toxic
- special warnings of danger for human and environment:**
  - R 40: potential irreversible health hazard
  - R 43: potential skin sensitivity upon contact
- Classification system:**  
Classification corresponds to the actual EG lists completed by information from specialized literature and from further details of the manufacturing companies.

### **4 First Aid Measures**

- after inhalation:** not applicable
- after contact to skin:** not applicable
- after contact to eyes:** not applicable
- after ingestion:** not applicable
- instructions for the physician:** none

### **5 Fire Fighting Procedures**

- Adequate means of extinction:** in accordance with environmental requirements.

Alloy 45 SDS F:/users/manuals/chemical hazards/msds/alloy45

- Protective equipment:** no special requirements.

## **6 Measures in Case of Unintentional Release**

- Personal precautions:** avoid dusting.
- Environmental precautions:** no special requirements.
- Cleaning/absorption:** disposal of contaminated material as waste according to item 13.

## **7 Handling and Storing**

### **Handling**

#### **Instructions regarding secure handling**

Avoid inhalation of grinding and polishing dusts, of cutting and welding fumes, and of aerosols.

Care for good ventilation/exhaust at the workshop place.

**Protection from fire and explosion:** provide for respirator.

### **Storing**

**Requirements to storing places and containers:** no special requirements.

**Directions for storing together with other goods:** not applicable.

Further instructions for storing conditions: not applicable.

### **Storing Class**

**VbF class:** not applicable.

## **8 Limitation of Exposure and Personal Protective Equipment**

- Additional directions for the construction of technical plants:**  
no further details; see item 7.

- Elements with Threshold Limit Values to be Observed with Reference to Operating Position:**

<u>CAS-No.</u>	<u>Element Designation</u>	<u>Type</u>	<u>Value/unit</u>
7440-02-0	nickel	TRK	0.50 mg/m <sup>3</sup>
	Nickel, respirable droplets	TRK	0.05 mg/m <sup>3</sup>
	Aluminium, fine dust	MAK	6 mg/m <sup>3</sup>
	Copper, total dus	MAK	1 mg/m <sup>3</sup>
	Copper, fine dust (fume)	MAK	0.1 mg/m <sup>3</sup>
	manganese	MAK	5 mg/m <sup>3</sup>
	cobalt	TRK	0.1 mg/m <sup>3</sup>

- Additional Information:** this table is based on listings being valid at the date of issue. According to the EWG directions, cobalt is not carcinogenic; however, in Germany (TRGS 900) there does exist a TRK value for cobalt.

## **Personal Precaution**

### **General Protection and Hygiene**

If finely divided (as dust, for example), keep away from nutriments, beverages, and feed. Separate keeping of protective clothing. Contaminated clothing is to be cleaned by means of exhausting, not by means of blowing off or by brushing. Do not inhale dust / smoke / fog.

Do not eat, drink, smoke or snuff during working. Avoid longer intensive contact to skin. Wash your hands before pauses and at the end of your daily work.

**Respiratory Protection**

If nickel is applied in a respirable form, do use respirator according to filter class P3, also allowable with semi-mask.

**Protection of hands:** not applicable

**Protection of eyes:** protective glasses

**9 Physical and Chemical Characteristics**

- form:** solid
- color:** metallicly bright to copper colored
- odor:** inodorous

	<u>Value/range unit method</u>
<input type="checkbox"/> <b>change of state:</b>	
<input type="checkbox"/> <b>melting point / melting range:</b>	1,080 - 1,530 °C
<input type="checkbox"/> <b>boiling point/boiling range:</b>	> 2,000 °C
<input type="checkbox"/> <b>point of ignition:</b>	not applicable
<input type="checkbox"/> <b>risk of explosion:</b>	the product is non-explosive
<input type="checkbox"/> <b>density at 20 °C:</b>	7.85 - 8.9 g/cm <sup>3</sup>
<input type="checkbox"/> <b>solubility / miscibility in water:</b>	insoluble

**10 Stability and Reactivity**

- thermal decomposition / conditions to be avoided:** not applicable
- dangerous reactions:**  
Reactions with acids; contact with acids will release flammable gases.
- dangerous decomposition products:** not known

**11 Toxicology**

**Acute toxicology:**

- **LD/LC50 values relevant to classification:**

Element	Type	Value	Speciman
nickel	oral	>9.000 mg/kg	rat

**Primary irritation:**

- **on skin:** no irritation
- **in the eye:** no irritation
- **sensitizing:** potential sensitizing by contact to skin

**Subacute to chronic toxicity:**

Inhalation:

According to EG Carc. Cat. 3, nickel probably has a carcinogenic effect on human organism if respirable. Any combination of nickel sulfides and oxides resulting from the production of nickel and its ores detectably is carcinogenic for man. However, the carcinogenic substances could not be identified. The risk of cancer seems to depend on formerly applied procedures of nickel refining.

Short-term exposure may cause irritations of the upper respiratory tract. However, various reliable studies on employees of the nickel manufacturing industry who had been exposed to

different forms of nickel and nickel containing materials could not ascertain an increased risk of cancer.

Contact to Skin:

Longterm direct contact to skin may cause dermatitis with sensitized persons.

## **12 Ecology Information**

**General:**

Water hazard class 0 (self rating): generally not water hazardous.

## **13 Disposal**

**Product**

**Recommendation:** contact manufacturer for recycling.

**Uncleaned Packing Material**

**Recommendation:** disposal in accordance with the official regulations.

## **14 Transport**

**Overland transport ADR/RID and GGVS/GGVE (international/domestic): UN No. product declaration:** no dangerous goods with reference to the indicated regulation.

**sea transport IMDG/GGVSee:**

**correct technical name:** no dangerous goods with reference to the indicated regulation.

**air transport ICAO-Ti and IATA-DGR:**

**Correct technical name:** no dangerous goods with reference to the indicated regulation.

## **15 Regulations**

**Identification according to EWG directions:**

The product is classified according to EWG directions/GefStoffV; however, it does not have to be marked (compact metal).

**Identification letter and product designation of danger:** Xn less toxic.

**R-phrases:**

40 potential irreversible health hazard

43 potential skin sensitivity upon contact

**S-phrases:**

22 do not inhale dust

36 do wear appropriate protective clothing during work

**National regulations:**

**additional classification according to GefstoffV, supplement II:**

carcinogenous dangerous material, group III (hazardous)

nickel: category 3

**Classification according to VbF:** not applicable

**Water hazard class:** WGK 0 (self rating): generally not water hazardous

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## **16 Miscellaneous**

The above information are based on our today's knowledge; however, they are no guarantee for any product characteristics nor do they establish any contractual legal relationship.

Jelliff Corporation takes no responsibility and gives no warranty, expressed or implied; representation, promise or statement as to the completeness, accuracy or currency of any data so provided.

**Literature:**

1. Threshold Limit Value and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, 1992-1993
2. National Toxicology Program, 6th Annual Report on Carcinogens, 1991
3. Nickel and Human Health, E. Nieboer and J. O. Nriagu, Wiley, 1992
4. Maximum Exposure Limit of the Health and Safety Executive in the U. K. - EH40/91.
5. Report of the International Committee on Nickel Carcinogenesis in Man, Scand. J. of Work Environment and Health, 1990, Doll, R.

**List of Abbreviations:**

**ADR:** Accord européen relatif au transport des marchandises dangereuses par route

**CAS:** Chemical Abstract Service

**EINECS:** European Inventory of Existing Chemical Substances

**EWG:** Europäische Wirtschaftsgemeinschaft

**GefStoffV:** Gefahrstoff-Verordnung

**GGVS/GGVE:** Gefahrgutverordnung Straße / Eisenbahn

**IATA-DGR:** International Air Transport Association Dangerous Goods Code

**ICAO-TI:** Technical Instructions for the Safe Transport of Dangerous Goods by Air

**IMDG:** International Marine Dangerous Goods

**LD/LC:** Letale Dosis: LD<sub>50</sub>/LC<sub>50</sub> für die akute Giftigkeit

**RID:** Internationale Ordnung für die Beförderung gefährlicher Güter mit der Eisenbahn

**R-Sätze:** Hinweise auf die besonderen Gefahren

**S-Sätze:** Sicherheitsratschläge

**TRbF:** Technische Regeln für brennbare Flüssigkeiten (technical rules concerning inflammable liquids)

**TRGS:** Technische Regeln für Gefahrstoffe

**TRK:** Technische Richtkonzentration

**VbF:** Verordnung über brennbare Flüssigkeiten (directions regarding inflammable liquids)

**WGK:** Wassergefährdungsklasse

**Data sheet issuing department:**

environment office / laboratory of Supplier

**Contact:** telephone 203-259-1615

Manufacturer/Supplier: Jelliff Corporation