

# UDDEHOLMS AB SAFETY DATA SHEET

## UDDEHOLM (BRUSH WELLMAN) Alloys: Moldmax®XL

Issued: 2010-01-04 (1)

Revised: 2010-08-08 (2)

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### 1. COMPANY AND PRODUCT INFORMATION

#### 1.1. Product identifier

Moldmax®XL

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Metal alloys for further processing

#### 1.3. Details of the supplier of the safety data sheet

Importer	Manufacturer
UDDEHOLMS AB S-683 85 HAGFORS Sweden Phone: +46 563 170 00 Fax: +46 563 174 61 Internet: www.uddeholm.com	CUSTOMER SERVICE Brush Wellman Inc. Product Stewardship Department 6070 Parkland Boulevard Mayfield Heights, Ohio 44124 Phone: (800) 862-4118 or (216) 486-4200 Fax: (216) 383-4091 www.brushwellman.com

Contact: Lars Sundström. E-mail: [lars.sundstrom@uddeholm.se](mailto:lars.sundstrom@uddeholm.se)

#### 1.4. Emergency telephone number

Emergency phone number: 112

### 2. HAZARDS IDENTIFICATION

#### 2.1. Classification of the substance or mixture

Metallic product which poses little or no immediate hazard in solid form. Alloys containing nickel are classified for skin sensitisation only when the release rate is minimum 0.5µg Ni/cm<sup>2</sup>/week.

#### 2.2. Label elements

Alloys in massive form do not require labelling under current chemical product classification and labelling regulations, if they are not classified as hazardous to health and environment. However the manufacturer recommends that the product will be labelled with a label as the one in section 16.

#### 2.3. Other hazards

Metallic product which poses little or no immediate hazard in solid form. If the material is involved in a fire; pressure-demand self-contained breathing apparatus and protective clothing must be worn by persons potentially exposed to the airborne particulate during or after a fire.

Processes which generate particulates from the working of alloys can cause hazards to health or environmental effects. May cause an allergic reaction on contact with skin or by inhalation. The alloys do not meet the criteria for PBT or vPvB in accordance with EU Directive 1907/2006 (REACH) Annex XIII.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1. Substance

Alloys are considered as special preparations only when they are remelted, otherwise they are classified as articles. For information on each substance in the alloys, see text below

#### 3.2. Mixture

The substances in the special mixture are as follows:

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Substance	EINICS-Nr.	Symbol (CLP)	Hazard statements (CLP)	CAS-Nr.	Index-Nr.	Symbol	R-phrases*
Copper (Cu)	231-159-6	GHS09 Warning	H410	7440-50-8	-	Xn, N	R20-50-53
Nickel (Ni)	231-111-4	GHS06 GHS08 Danger	H317 H331 H351	7440-02-0	028-002-00-7	T	R40-43-48/23
Tin (Tn)	231-141-8	GHS07 GHS09 Danger	H315 H319 H335 H410	7440-31-5	-	F, Xi, N	R11-36/37/38-50/53
Zinc (Zn)	231-175-3	GHS02 GHS09 Danger Warning	H250 H410	7440-66-6	030-001-00-1	F, N	R15-17-50/53
Iron (Fe)	231-096-4	GHS02 Danger	H242	7439-89-6	-	O	R7

\*For complete wording of R-phrases and hazard statements see section 16.

Substance (weight %)	Moldmax®XL
Copper (Cu)	83 - 85
Nickel (Ni)	8.5 - 9.5
Tin (Tn)	5.5 - 6.5
Zinc (Zn)	0 - 0.5
Iron (Fe)	0 - 0.5

#### 4. FIRST AID MEASURES

##### 4.1. Description of first aid measures

Show this safety data sheet to the doctor on duty.

##### 4.1.1. Relevant routes of exposure

###### Inhalation

If dust, fumes or mist inhaled, remove patient to fresh air, allow to rest and keep warm.

Breathing difficulty caused by inhalation of particulate requires immediate removal to fresh air. If breathing has stopped, perform artificial respiration and obtain medical help.

Copper: Inhalation of particulate containing metallic copper can cause ulceration and perforation of the nasal septum.

Nickel: Can cause headaches, dizziness, and difficult breathing. Symptoms may include coughing, sore throat and shortness of breath.

Tin: When inhaled as a particulate, may cause benign pneumoconiosis.

###### Skin contact

Thoroughly wash skin cuts or wounds to remove all particulate debris from the wound. Seek medical attention for wounds that cannot be thoroughly cleansed. Treat skin cuts and wounds with standard first aid practices such as cleansing, disinfecting and covering to prevent wound infection and contamination before continuing work. Obtain medical help for persistent irritation. Material accidentally implanted or lodged under the skin must be removed.

Copper: Particulate may cause a greenish-black skin discoloration.

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Nickel: May cause allergic dermatitis. Nickel is a contact allergen and sensitizer.

Tin: Prolonged and/or repeated contact may cause dermatitis.

**Eye contact**

Avoid getting finely divided particles in the eyes. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Copper: Particulate in the eyes may cause discoloration.

**Ingestion**

Alloys in massive form are not hazardous, but should be kept out of the mouth. Finely divided particles may be easily ingested along with food, drink or smoking. If large quantities ingested, seek medical advice. Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

Copper: Copper ingestion causes nausea, vomiting, abdominal pain, metallic taste, and diarrhea. Ingestion of large doses may cause stomach and intestine ulceration, jaundice, and kidney and liver damage.

Nickel: Causes gastrointestinal irritation with nausea, vomiting and diarrhea.

Tin: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Ingested inorganic tin exhibits only moderate toxicity due to poor absorption and rapid tissue turnover. May interfere with various enzyme systems. Inorganic tin salts may cause systemic effects on the central nervous system, heart and liver.

**4.2. Most important symptoms and effects**

The alloys in themselves or particles from the alloy are not judged as acute toxic. From the medical point of view, there is no evidence to indicate an absolute or a sharp distinction between harmful and non harmful content. An average content in the air of a single substance at the level of the limit considered, with current knowledge, generally not present any risk of injury or discomfort. It is nevertheless important to strive to keep all air pollutants as low as possible during the exposure limit. A particularly important situation is that if someone is exposed to multiple air pollutants simultaneously or exposed to air pollution related to heavy work. Keep dust levels below the limits mentioned in section 8.1.

**4.3. Indication of any immediate medical attention and special treatment needed**

There is no indication of immediate medical attention or special treatment documented for the alloys.

**5. FIRE-FIGHTING MEASURES**

**5.1. Extinguishing media**

Flash Point	Non-combustible as a solid. No ignition as layer of sub 44 micron particles of copper.
Explosive Limits	Not applicable to solids. No ignition as cloud of sub 44 micron particles of nominal copper.
Extinguishing Media	This material is non-combustible. Use extinguishing media appropriate to the surrounding fire.
Unusual Fire and Explosion Hazards	Do not use water to extinguish fires around operations involving molten metal due to the potential for steam explosions.

**5.2. Special hazards arising from the substance or mixture**

Finely divided copper in contact with chlorates or iodates explode in heat or shock. Copper can react with chlorine, chlorine trifluoride, fluorine, sulfuric acid, kaliumdioxid. Sensitive to air exposure. Very fine nickel powder can ignite on contact with air. Nickel reacts violently with F2, NH4NO3, hydrazine, performic acid, phosphours and sulfur, etc. Finely divided zinc involves a risk of dust explosions. Zincdust in contact with oxygen and water develops hydrogen. Zink reacts with oxidants such as ammonium nitrate, salpetyra, potassium chlorate. Tin reacts violently with carbon tetrachloride in the presence of water vapor. Tin can react violently with oxidants. Melted tin can explode in contact with water. Oxidize easily in air. Finely

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divided iron can explode in contact with air. Solid iron will react with oxidising materials, fluorine, chlorine, chlorine trifluoride, hydrogen peroxide, etc.

### 5.3. Advice for fire-fighter

Pressure-demand self-contained breathing apparatus must be worn by firefighters or any other persons potentially exposed to the metal fumes or dust released during or after a fire.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures.

If this material is a particulate, establish a restricted entry zone based on the severity of the spill. Persons entering the restricted zone must wear adequate respiratory protection and protective clothing appropriate for the severity of the spill (see Section 8).

### 6.2. Environmental precautions

Prevent particulates from entering watercourses or drains. Avoid formation of dust clouds.

### 6.3. Methods and material for containment and cleaning up

Cleanup spills with a vacuum system utilizing a high efficiency particulate air filtration system followed by wet cleaning methods. Special precautions must be taken when changing filters on the vacuum cleaners used to clean up hazardous materials. Be careful to minimize airborne generation of particulate and avoid contamination of air and water. Do not use compressed air, brooms, or conventional vacuum cleaners to remove particulate from surfaces as this activity can result in elevated exposures to airborne particulate.

### 6.4. Reference to other sections

See also section 8.2.7.

## 7. HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Extraction should be used when working with particulate material (dust, fumes, mist). Avoid prolonged inhalation of dust. Wear gloves to avoid contact with skin (see Section 8). Working areas should be provided with extraction. Check ventilation equipment regularly to ensure it is functioning properly.

Factories should be kept clean to avoid any unnecessary contamination.

Do not to eat, drink and smoke in work areas and wash hands/shower when leaving the working areas.

### 7.2. Conditions for safe storage, including any incompatibilities

Store in a dry environment.

### 7.3. Specific end use(s)

See section 13.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

All over 8 hour period unless otherwise stated. Monitoring procedures are not required.

Copper	UK	WEL	2mg/m <sup>3</sup>	respirable		
			0.2mg/m <sup>3</sup>	fume		
			1mg/m <sup>3</sup>	dusts and mist		
Nickel	Sweden	NGV	1mg/m <sup>3</sup>	total		
			UK	WEL	0.5mg/m <sup>3</sup>	total
			Sweden	NGV	0.5mg/m <sup>3</sup>	total
Tin	UK	WEL	0.1mg/m <sup>3</sup>	total		
			Sweden	NGV	0.1mg/m <sup>3</sup>	total

\*Workplace exposure limits in UK and Sweden.

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### 8.2. Exposure control

Always check the applicability of any protective equipment with your supplier. Always wear protective clothing when handling dusts and other particulates. Conduct an exposure risk assessment of processes to determine if conditions or situations exist which dictate the need for additional controls or improved work practices.

#### 8.2.1. Eye/face protection

Always wear eye protection when handling dusts and other particulates, eg safety glasses with side protection, safety goggles or visor. Wear safety glasses, goggles, face shield, or welder's helmet when risk of eye injury is present, particularly during melting, casting, machining, grinding, welding, powder handling, etc.

#### 8.2.2. Skin protection

Always wear protective clothing when handling dusts and other particulates. Wear hand protection, eg leather gloves when handling alloys with sharp edges to avoid cuts.

#### 8.2.3. Hand protection

Wear hand protection, eg leather gloves when handling alloys with sharp edges to avoid cuts. Always wear disposable nitrile or vinyl gloves when handling particulate material to avoid skin contact. Where necessary wear the disposable gloves under work gloves to protect against both types of hazard.

#### 8.2.4. Respiratory protection

Alloys in delivered in solid form give no health risk through inhalation. In case of prolonged or frequent exposure to particulates, wear particle filter mask (P3).

#### 8.2.5. General hygiene measures

Wash hands well with soap and water after handling dusty materials. Wash contaminated clothing to avoid secondary contamination or contamination of other personnel.

#### 8.2.6. Thermal hazards

Ensure adequate ventilation to keep levels of air-borne particles below occupational exposure limits given above. Working areas should be provided with extraction. Factories should be kept clean to avoid any unnecessary contamination.

#### 8.2.7 Environmental exposure control

Avoid letting dust and fumes entering the outside air.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

Product names	Color	Melting point	Density
Weldpak®XL	Brass	950° C, 1742° F	8,94 g/cm <sup>3</sup> , 0.323lb/in <sup>3</sup>

### 9.2. Other information

No other physical or chemical parameters are necessary for the alloys.

## 10. STABILITY AND REACTIVITY

### 10.1. Reactivity

Alloys are stable. Any reaction should not take place under normal circumstances.

### 10.2. Chemical stability

Alloys are stable. Corrosion should not take place under normal circumstances.

### 10.3. Possibility of hazardous reactions

See section 5.2.

### 10.4. Conditions to avoid

No special conditions need to be avoided for the alloys, however keep dust and fumes from entering the environment.

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### 10.5. Incompatible materials

Contact with acids can generate explosive gasses, eg hydrogen.

### 10.6. Hazardous decomposition products

None under normal conditions of use.

## 11. TOXICOLOGICAL INFORMATION

### 11.1. Effect on humans

Alloys contain nickel which carries a risk of producing an allergic reaction following prolonged contact or in already sensitised persons. Particles from the alloy are not judged as acute toxic. No further toxicological data available for the alloys. See below for LD50 or LC50 for the individual substances, since no LC50 or LD50 has been established for the mixture as a whole.

Zinc - Oral LD <sub>50</sub> Rat	2000mg/kg bodyweight	
Nickel- Oral LD <sub>50</sub> Rat	>5000 mg/kg bodyweight	
Iron - Oral LD <sub>50</sub> Rat	30000 mg/kg bodyweight	(not harmful)
Copper- LC <sub>50</sub> Fish 96h	0,017 mg/l species: Oncorhynchus mykiss (copper ion)	
Tin - LC <sub>50</sub> Fish 96h	0,42 mg/l	

## 12. ECOLOGICAL INFORMATION

### 12.1. Toxicity

Alloys contain metals which are considered to be very toxic towards aquatic organisms. Finely divided alloys are therefore considered harmful to aquatic organisms.

### 12.2. Persistence and degradability

The alloys consist of elements that can not degrade any further in the environment.

### 12.3. Bioaccumulative potential

The alloys contain heavy metals which bioaccumulate in the food chain. The following figures are the bioconcentration factor (BCF) for the substances on their own.

Tin, BCF: 800000

Iron, BCF: 140000

Zinc, BCF: 92

Copper, BCF: 29

Nickel, BCF: 16

### 12.4. Mobility in soil

Metal alloys are not soluble in water or soil. Particles formed by working alloys can be transported in the air.

### 12.5. Results of PBT and vPvB assessment

Neither the alloys in itself or the substances that it consist of, meet the criteria for PBT or vPvB in accordance with REACH, Annex XIII.

### 12.6. Other adverse effects

In massive form alloys present no hazards to the aquatic environment. Particles and ions can, never the less, enter the aquatic compartment by means of dusts or smoke, or by liberation due to erosion thereby introducing iron or heavy metals into the ground or water. This material can be recycled; contact your Sales Representative.

## 13. DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

Non-contaminated waste from the production and pure-grade- alloys are recyclable. The unused product (massive alloy) is not classified as hazardous waste. Dispose in accordance with appropriate government regulations. Any

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residues of finely divided product (particles, dust, fumes) are regarded as Hazardous Waste. Contact your local entrepreneur for advice.

### 14. TRANSPORT INFORMATION

#### 14.1. UN number

Alloys in massive form are not classified as dangerous goods for transport and has no UN number.

#### 14.2. UN proper shipping name

Alloys in massive form are not classified as dangerous goods for transport and has no UN proper shipping name

#### 14.3. Transport hazard class(es)

Alloys in massive form are not classified as dangerous goods for transport.

#### 14.4. Packing group

There are not any special precautions with which a user should or must comply or be aware of in connection with transport or conveyance either within or outside his premises.

#### 14.5. Environmental hazards

The alloys are not environmentally hazardous according to the criteria of the UN Model Regulations (as reflected in the IMDG Code, ADR, RID and ADN) and/or a marine pollutant according to the IMDG Code.

#### 14.6. Special precautions for user

There are not any special precautions which a user should or must comply or be aware of in connection with transport or conveyance either within or outside his premises of the alloys. There is no requirement for labelling, but the supplier urge to label the alloys according to section 16.2.

#### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Alloys in massive form do not subject under MARPOL73/78 and the IBC Code.

### 15. REGULATORY INFORMATION

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

The cast alloys are as preparations / special preparations for the EU's preparations ISD 1999/45/EC, Regulation (EC) No 1907/2006 (REACH) and mixtures according to the Regulation (EC) 1272/2008 (CLP / EU-GHS) and do not need to be labeled.

Classifications mentioned in table 3.2 concerns substances in their crushed form. Alloys in massive form do not require labelling under current chemical product classification and labelling regulations, if they are not classified as hazardous to health and environment. Contains nickel. Alloys in particulate form eg dust, fumes, mist may cause an allergic reaction on contact with skin or if inhaled.

#### 15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out for the product.

### 16. OTHER INFORMATION

#### 16.1. Modifications since previous version

Version 2: name change of company

The information has been updated in all sections.

#### Key literature references and sources for data

Study overview made for the first edition of the material safety data sheets were constructed by Amasis Konsult AB. The manufacturer's (Brush Wellman) MSDS has been a source of information. For this version has <http://kemi.prevent.se/> (a chemical substances database which is a compilation of data from numerous sources) been used for information on individual substances.

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*Full text of R-phrases used in Section 3*

R7	May cause fire
R11	Highly flammable
R15	Contact with water liberates extremely flammable gases
R17	Spontaneously flammable in air
R20	Harmful by inhalation
R36/37/38	Irritating to eyes, respiratory system and skin
R40	Limited evidence of a carcinogenic effect
R43	May cause sensitisation by skin contact
R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation
R50	Very toxic to aquatic organisms
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R53	May cause long-term adverse effects in the aquatic environment

*Full text of Hazard statements used in Section 3*

H242	Heating may cause a fire
H250	Catches fire spontaneously if exposed to air
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H331	Toxic if inhaled
H335	May cause respiratory irritation
H351	Suspected of causing cancer
H410	Very toxic to aquatic life with long lasting effects

Weldpak®XL is a registered trademark of Brush Wellman. For any further information, see [www.brushwellman.com](http://www.brushwellman.com) please contact:

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S-683 85 HAGFORS	Fax: +46 563 174 61
Sweden	web: <a href="http://www.uddeholm.com">www.uddeholm.com</a>

The following label is attached to the product during transportation from Uddeholms AB. The label can vary in size and has black text and frame on a yellow background.

PRODUCT MANAGEMENT: MOLDMAX XL  
WARNING  
INHALATION OF DUST OR FUMES MAY BE  
HAZARDOUS TO YOUR HEALTH.  
READ THE MATERIAL SAFETY DATA SHEET  
(MSDS) WITH YOUR EMPLOYER BEFORE  
WORKING WITH THIS MATERIAL.

This product contains nickel.  
In solid form and as contained in finished products  
presents no special health risks.  
If processing produces particulate, use exhaust  
ventilation or other controls designed to prevent  
exposure to workers. Examples of such activities  
include melting, welding, grinding, abrasive sawing,  
sanding and polishing. Any activity which abrades  
the surface of this material can generate airborne  
particulate.

Nickel is classified as a potential cancer hazard.