

**1. Identification**

**Product identifier** 400 Series Low Ni  
**Other means of identification**  
**Synonyms** 409L \* 409CB \* 410L \* 434L \* 409L + NI \* 430L  
**Recommended use** Not available.  
**Recommended restrictions** None known.

**Manufacturer/Importer/Supplier/Distributor information**

**Company name** Ametek Specialty Metals  
**Address** 1085 Rte 519  
 Eighty Four, PA 15330  
 US  
**Telephone** 1-724-225-2658  
**E-mail** Not available.

**Emergency phone number** 1-703-527-3887

**2. Hazard(s) identification**

**Physical hazards** Not classified.  
**Health hazards** Specific target organ toxicity, repeated exposure Category 2 (Central Nervous System, Lung)  
**OSHA defined hazards** Combustible dust

**Label elements**



**Signal word** Danger  
**Hazard statement** May cause damage to organs (Central Nervous System, Lung) through prolonged or repeated exposure. May form combustible dust concentrations in air.  
**Precautionary statement**  
**Prevention** Prevent dust accumulation to minimize explosion hazard. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Do not breathe dust/fume/gas/mist/vapors/spray.  
**Response** In case of fire: Use appropriate media to extinguish.  
**Storage** Keep away from heat, sparks and open flame.  
**Disposal** Dispose of contents/container in accordance with local/regional/national/international regulations.  
**Hazard(s) not otherwise classified (HNOC)** None known.  
**Supplemental information** None.

**3. Composition/information on ingredients**

**Mixtures**

Chemical name	CAS number	%
Iron	7439-89-6	80 - 88
Chromium	7440-47-3	10 - 28
Molybdenum	7439-98-7	0 - 2.5
Manganese	7439-96-5	0 - 2.0

Silicon	7440-21-3	0 - 1.5
Niobium	7440-03-1	0 - 0.8
Sulfur	7704-34-9	0 - 0.3
Carbon	7440-44-0	0 - 0.2
Phosphorus	7723-14-0	0 - 0.04

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. The alloy contains additional alloying elements at concentrations below disclosure requirements. At temperatures above the melting point the alloys may liberate fumes containing oxides of alloying elements.

#### 4. First-aid measures

**Inhalation** If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

**Skin contact** Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.

**Eye contact** Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.

**Ingestion** Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.

**Most important symptoms/effects, acute and delayed** Dusts may irritate the respiratory tract, skin and eyes.

**Indication of immediate medical attention and special treatment needed** Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

**General information** IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

#### 5. Fire-fighting measures

**Suitable extinguishing media** Special powder against metal fires. Dry sand.

**Unsuitable extinguishing media** Do not use water or halogenated extinguishing media. Do not use water on molten metal: Explosion hazard could result.

**Specific hazards arising from the chemical** During fire, gases hazardous to health may be formed. Solid metal is not flammable; however, finely divided metallic dust or powder may form an explosive mixture with air. In a fire, nickel may form nickel carbonyl, a highly toxic substance and known carcinogen.

**Special protective equipment and precautions for firefighters** Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

**Fire fighting equipment/instructions** Move containers from fire area if you can do it without risk.

**General fire hazards** Powder may burn. Dust is an explosion hazard.

#### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures** Ensure adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Wear protective clothing as described in Section 8 of this safety data sheet.

**Methods and materials for containment and cleaning up** Avoid dust formation. Allow spilled material to solidify and scrape up with shovels into a suitable container for recycle or disposal. Collect dust using a vacuum cleaner equipped with HEPA filter. The vacuum cleaner should be explosion-proofed. If not possible, gently moisten dust before it is collected with shovel, broom or the like. This material and its container must be disposed of as hazardous waste.

**Environmental precautions** Avoid release to the environment. Do not contaminate water.

## 7. Handling and storage

### Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimize dust generation and accumulation. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Explosion-proof general and local exhaust ventilation. Do not breathe dust. Avoid contact with eyes, skin, and clothing. Persons susceptible for allergic reactions should not handle this product. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

### Conditions for safe storage, including any incompatibilities

Store locked up. Keep containers tightly closed in a dry, cool and well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	PEL	1 mg/m3	
Manganese (CAS 7439-96-5)	Ceiling	5 mg/m3	Fume.
Molybdenum (CAS 7439-98-7)	PEL	15 mg/m3	Total dust.
Phosphorus (CAS 7723-14-0)	PEL	0.1 mg/m3	
Silicon (CAS 7440-21-3)	PEL	5 mg/m3 15 mg/m3	Respirable fraction. Total dust.

#### US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value
Carbon (CAS 7440-44-0)	TWA	15 mppcf

#### US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m3	
Manganese (CAS 7439-96-5)	TWA	0.1 mg/m3	Inhalable fraction.
Molybdenum (CAS 7439-98-7)	TWA	0.02 mg/m3 3 mg/m3	Respirable fraction. Respirable fraction.
Phosphorus (CAS 7723-14-0)	TWA	10 mg/m3 0.1 mg/m3	Inhalable fraction.

#### US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	2.5 mg/m3	Respirable.
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m3	
Manganese (CAS 7439-96-5)	STEL	3 mg/m3	Fume.
	TWA	1 mg/m3	Fume.
Phosphorus (CAS 7723-14-0)	TWA	0.1 mg/m3	
Silicon (CAS 7440-21-3)	TWA	5 mg/m3 10 mg/m3	Respirable. Total

### Biological limit values

No biological exposure limits noted for the ingredient(s).

### Exposure guidelines

Follow standard monitoring procedures.

<b>Appropriate engineering controls</b>	Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust. Ventilate as needed to control airborne dust. Use explosion-proof ventilation equipment if airborne dust levels are high. Special ventilation should be used to convey finely divided metallic dust generated by grinding, sawing etc., in order to eliminate explosion hazards.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Wear dust-resistant safety goggles where there is danger of eye contact. In addition to safety glasses or goggles, a welding helmet with appropriate shaded shield is required during welding, burning, or brazing. A face shield is recommended, in addition to safety glasses or goggles, during sawing, grinding, or machining.
<b>Skin protection</b>	
<b>Hand protection</b>	Wear suitable protective gloves to prevent cuts and abrasions. When material is heated, wear gloves to protect against thermal burns. Suitable gloves can be recommended by the glove supplier.
<b>Other</b>	Wear suitable protective clothing.
<b>Respiratory protection</b>	In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter. When engineering controls are not sufficient to lower exposure levels below the applicable exposure limit, use a NIOSH approved respirator for dusts. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever work place conditions warrant a respirator's use. Seek advice from local supervisor.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Private clothes and working clothes should be kept separately. Contaminated uniforms should be laundered separately from other clothing to prevent potential cross-contamination. If possible, an industrial laundry service should be used to eliminate the possibility of contaminating the home environment. Handle in accordance with good industrial hygiene and safety practices. Observe any medical surveillance requirements.

## 9. Physical and chemical properties

### Appearance

**Physical state** Solid.

**Form** Powder.

**Color** Gray.

**Odor** Not available.

**Odor threshold** Not available.

**pH** Not available.

**Melting point/freezing point** Not available.

**Initial boiling point and boiling range** Not available.

**Flash point** Not available.

**Evaporation rate** Not available.

**Flammability (solid, gas)** Combustible dust.

### Upper/lower flammability or explosive limits

**Flammability limit - lower (%)** Not available.

**Flammability limit - upper (%)** Not available.

**Explosive limit - lower (%)** Not available.

**Explosive limit - upper (%)** Not available.

**Vapor pressure** Not available.

**Vapor density** Not available.

**Relative density** 7.5 - 9.3

### Solubility(ies)

**Solubility (water)** Insoluble

**Partition coefficient (n-octanol/water)** Not available.

**Auto-ignition temperature** Not available.

**Decomposition temperature** Not available.

**Viscosity** Not available.

## 10. Stability and reactivity

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability** Material is stable under normal conditions.

**Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.

**Conditions to avoid** Keep away from heat, sparks and open flame. Minimize dust generation and accumulation. Contact with incompatible materials.

**Incompatible materials** Strong acids. Strong oxidizing agents.

**Hazardous decomposition products** No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

**Inhalation** Prolonged inhalation may be harmful. Dust may irritate respiratory system. May cause damage to organs through prolonged or repeated exposure by inhalation.

**Skin contact** Dust may irritate skin.

**Eye contact** Direct contact with eyes may cause temporary irritation.

**Ingestion** Expected to be a low ingestion hazard.

**Symptoms related to the physical, chemical and toxicological characteristics** Dusts may irritate the respiratory tract, skin and eyes.

### Information on toxicological effects

**Acute toxicity** Not expected to be acutely toxic.

Components	Species	Test Results
Carbon (CAS 7440-44-0)		
<b>Acute</b>		
<i>Oral</i>		
LD50	Rat	> 10000 mg/kg
Manganese (CAS 7439-96-5)		
<b>Acute</b>		
<i>Inhalation</i>		
LC50/LC90	Rat	> 1500 mg/m <sup>3</sup> , 4 hours
<i>Oral</i>		
LD50	Rat	9000 mg/kg
Silicon (CAS 7440-21-3)		
<b>Acute</b>		
<i>Oral</i>		
LD50	Rat	3160 mg/kg
Sulfur (CAS 7704-34-9)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rat	> 2000 mg/kg, 24 Hours
<i>Inhalation</i>		
LC50	Rat	> 5.43 g/m <sup>3</sup> , 4 Hours
<i>Oral</i>		
LD50	Rat	> 2200 mg/kg

**Skin corrosion/irritation** Prolonged skin contact may cause temporary irritation.

**Serious eye damage/eye irritation** Direct contact with eyes may cause temporary irritation.

## Respiratory or skin sensitization

**Respiratory sensitization** Not a respiratory sensitizer.

**Skin sensitization** Dust may irritate skin.

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity** Not classified.

### IARC Monographs. Overall Evaluation of Carcinogenicity

Chromium (CAS 7440-47-3) 3 Not classifiable as to carcinogenicity to humans.

### NTP Report on Carcinogens

Not listed.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** May cause damage to organs (Central Nervous System, Lung) through prolonged or repeated exposure.

**Aspiration hazard** Due to the physical form of the product it is not an aspiration hazard.

**Chronic effects** Causes damage to organs through prolonged or repeated exposure. May cause damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

## 12. Ecological information

**Ecotoxicity** The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Iron (CAS 7439-89-6)			
<b>Aquatic</b>			
Fish	LC50	Channel catfish ( <i>Ictalurus punctatus</i> )	> 500 mg/l, 96 Hours
Phosphorus (CAS 7723-14-0)			
<b>Aquatic</b>			
Crustacea	EC50	Water flea ( <i>Daphnia magna</i> )	0.025 - 0.037 mg/l, 48 hours
Fish	LC50	Bluegill ( <i>Lepomis macrochirus</i> )	0.002 - 0.006 mg/l, 96 hours 0.001 - 0.004 mg/l, 96 hours

**Persistence and degradability** The product is not expected to be readily biodegradable.

**Bioaccumulative potential** Metal powders in water or soil may form metal oxides or other metal compounds that could become bioavailable and harm aquatic or terrestrial organisms.

**Mobility in soil** Alloys in massive forms are not mobile in the environment.

**Other adverse effects** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

## 13. Disposal considerations

**Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** D007: Waste Chromium  
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products** Recover and recycle, if practical. Solid metal and alloys in the form of particles may be reactive. Its hazardous characteristics, including fire and explosion, should be determined prior to disposal. Dispose of in accordance with local regulations.

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport information

### DOT

**UN number** Not available.  
**UN proper shipping name** This material is not hazardous as defined by the U.S. Department of Transportation 49CFR.  
**Transport hazard class(es)**  
**Class** Not available.  
**Subsidiary risk** -  
**Packing group** Not applicable.  
**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

### IATA

Not regulated as dangerous goods.

### IMDG

Not regulated as dangerous goods.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

## 15. Regulatory information

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

### CERCLA Hazardous Substance List (40 CFR 302.4)

Chromium (CAS 7440-47-3)	LISTED
Manganese (CAS 7439-96-5)	LISTED
Phosphorus (CAS 7723-14-0)	LISTED

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Hazard categories** Immediate Hazard - No  
Delayed Hazard - Yes  
Fire Hazard - Yes  
Pressure Hazard - No  
Reactivity Hazard - No

### SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
Phosphorus	7723-14-0	1	100		

**SARA 311/312 Hazardous chemical** Yes

### SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Chromium	7440-47-3	10 - 28
Manganese	7439-96-5	0 - 2.0

### Other federal regulations

#### Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Chromium (CAS 7440-47-3)  
Manganese (CAS 7439-96-5)  
Phosphorus (CAS 7723-14-0)

#### Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

**Safe Drinking Water Act (SDWA)** Not regulated.

## US state regulations

### US. Massachusetts RTK - Substance List

Carbon (CAS 7440-44-0)  
Chromium (CAS 7440-47-3)  
Manganese (CAS 7439-96-5)  
Molybdenum (CAS 7439-98-7)  
Phosphorus (CAS 7723-14-0)  
Silicon (CAS 7440-21-3)  
Sulfur (CAS 7704-34-9)

### US. New Jersey Worker and Community Right-to-Know Act

Carbon (CAS 7440-44-0)  
Chromium (CAS 7440-47-3)  
Manganese (CAS 7439-96-5)  
Molybdenum (CAS 7439-98-7)  
Phosphorus (CAS 7723-14-0)  
Silicon (CAS 7440-21-3)  
Sulfur (CAS 7704-34-9)

### US. Pennsylvania Worker and Community Right-to-Know Law

Carbon (CAS 7440-44-0)  
Chromium (CAS 7440-47-3)  
Manganese (CAS 7439-96-5)  
Molybdenum (CAS 7439-98-7)  
Phosphorus (CAS 7723-14-0)  
Silicon (CAS 7440-21-3)  
Sulfur (CAS 7704-34-9)

### US. Rhode Island RTK

Chromium (CAS 7440-47-3)  
Manganese (CAS 7439-96-5)  
Phosphorus (CAS 7723-14-0)

### US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

## International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information, including date of preparation or last revision

Issue date	01-July-2015
Revision date	20-May-2016
Version #	02
Further information	Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.



**HMIS® ratings**

Health: 3\*  
Flammability: 1  
Physical hazard: 0

**Disclaimer**

The above information is believed to be accurate based on the most current data available. Ametek makes no warranty, either expressed or implied, with respect to such information, and assumes no liability resulting from its use. Users are advised to conduct their own test to determine the safety and suitability of each product or product combination for their own purposes. Ametek shall not be liable for claims, losses or damages of any third party or for lost profits or incidental or consequential damages.