MATERIAL SAFETY DATA SHEET

1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT(S): STEEL - A50, 301, 301L, 302, 302B, 304, 304H, 304L, 304LN, 304N, 305, 316, 316L, 316LN, 316TI, 317, 317L, 317LX, 317LXN, 317XN, 321, 321H, 347, 348, 370, 388 Ze-Cor™ , A610, A611, 850, 13-8 PH , 307

MSDS CATEGORY: I-B

MANUFACTURER:

ALLEGHENY LUDLUM CORPORATION
100 RIVER ROAD
BRACKENRIDGE, PA 15014

DESCRIPTION: Solid product, various forms and uses

EMERGENCY PHONE: 724-226-5555

INFO. PHONE: 724-226-5980 (M-F, 9 a.m.-4:30 p.m. EST)

CHEMTREC: 800-424-9300

DATE OF APPROVAL: 09-15-2004

2 - COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	PERCENTAGE BY WEIGHT	OSHA PEL	ACGIH TLV
Iron	7439-89-6	52 - 78	10 mg/m^3, Iron Oxide form, fume	5 mg/m^3, Iron Oxide form, dust and fume
Chromium	7440-47-3	12 - 24	1 mg/m^3, metal and insoluble salts 0.5 mg/m^3, Cr (III) compounds 0.1 mg/m^3, Cr (VI) compounds	0.5 mg/m^3, metal and Cr (III) compounds 0.05 mg/m^3, Cr (VI) water soluble compounds 0.01 mg/m^3, Cr (VI) water insoluble compounds
Nickel	7440-02-0	6.0 - 19	1 mg/m^3, metal and insoluble compounds	1.5 mg/m^3, metal 0.1 mg/m^3, soluble compounds 0.2 mg/m^3, insoluble compounds
Molybdenum	7439-98-7	0 - 5.0	5 mg/m^3, soluble Mo compounds (as Mo) 15 mg/m^3, insoluble Mo compounds, total dust (as Mo)	5 mg/m^3, soluble Mo compounds (as Mo) 10 mg/m^3, insoluble Mo compounds (as Mo)
Silicon	7440-21-3	0 - 6	15 mg/m^3, total dust 5 mg/m^3, respirable fraction	10 mg/m^3, total dust
Manganese	7439-96-5	0 - 2.0	5 mg/m^3 Ceiling, Mn compounds and Mn fume (as Mn)	0.2 mg/m^3, elemental and inorganic compounds (as Mn)
Tungsten	7440-33-7	0 - 1.8	15 mg/m^3, total dust (PNOR) 5 mg/m^3, respirable fraction (PNOR) (not regulated)	1 mg/m^3, 3 mg/m^3 STEL soluble W compounds (as W) 5 mg/m^3, 10 mg/m^3 STEL insoluble W compounds (as W)
Aluminum	7429-90-5	0 - 1.5	15 mg/m^3, metal, total dust (as Al) 5 mg/m^3, metal, respirable fraction (as Al)	10 mg/m^3, metal dust 5 mg/m^3, welding fume
Columbium	7440-03-1	0 - 1.0	15 mg/m^3, total dust (PNOR) 5 mg/m^3, respirable fraction (PNOR) (not regulated)	10 mg/m^3, total dust (PNOC) (not classified)
Titanium	7440-32-6	0 - 0.7	15 mg/m^3, Titanium Dioxide form, total dust	10 mg/m^3, Titanium Dioxide form, total dust
Copper	7440-50-8	0 - 0.75	0.1 mg/m^3, fume (as Cu) 1 mg/m^3, dust and mist (as Cu)	0.2 mg/m^3, fume (as Cu) 1 mg/m^3, dusts and mists (as Cu)
Cobalt	7440-48-4	0 - 1.0	0.1 mg/m^3, metal, dust, and fume (as Co)	0.02 mg/m^3, elemental and inorganic compounds (as Co)

NOTE: 1) All exposure limits are 8-hour TWAs unless otherwise specified. 2) As defined by OSHA, STEL (Short Term Exposure Limit) is an employee's fifteen-minute, time-weighted average exposure, which must not be exceeded during a workday. 3) All commercial metals may contain small amounts of various elements in addition to those specified. These small quantities (less than 0.1%), frequently referred to as "trace" or "residual" elements, generally originate in the raw material used. These elements may include, but are not limited to the following: Sulfur, Phosphorous, Nitrogen, Aluminum, Arsenic, Boron, Cadmium, Calcium, Lead, Tin, Titanium, Vanadium, and Zirconium. Abbreviations and acronyms are defined in Section 16.

SYNERGISTIC MATERIALS: Inhalation of high concentrations of Iron Oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens.

SIGNS AND SYMPTOMS OF OVEREXPOSURE:

- Redness, swelling, itching, and/or irritation of skin and eyes
- Respiratory difficulties - coughing, wheezing, shortness of breath, dyspnea, decreased pulmonary function
- Metal fume fever - symptoms consist of chills and fever (very similar and easily confused with flu symptoms), a metallic taste in the mouth, dryness and irritation of the throat. The symptoms occur a few hours after excessive exposures and usually last from 12 to 48 hours. Long term effects from metal fume fever have not been noted in the literature.
- Central nervous system effects may show languor, sleepiness, weakness, emotional disturbances, spastic gait, paralysis.
- Kidney damage may be seen as changes in urine output and appearance, lower back pain, and edema (swelling from fluid retention).
- Liver damage may be seen by loss of appetite, jaundice (yellowish skin color) and occasional pain in the upper abdomen on the left side.
- Anorexia and Weight loss

NOTE: For specific toxicological and other chronic effects information concerning the components of this solid steel product, *refer to SECTION 11.0, TOXICOLOGICAL INFORMATION.*

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: For airborne fume and dust, preexisting diseases of the lungs, skin, eyes, and other mucous membranes. Inhalation of high concentrations of Iron Oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens.

4 - FIRST AID MEASURES

INHALATION: If overexposure occurs, immediately remove victim from the adverse environment to fresh air and seek medical attention. If breathing has stopped, certified individuals should perform CPR. Keep affected person warm and at rest.

EYE: Immediately flush with large amounts of running water for several minutes. Seek prompt medical attention.

SKIN: If dust gets on skin, wash contaminated area with soap and water. Remove and wash contaminated clothing. If a persistent rash or irritation occurs, seek medical attention.

INGESTION: Get medical attention immediately.

5 - FIRE FIGHTING MEASURES

FLASH POINT (Method Used): N/A

FLAMMABLE LIMITS: N/A

AUTOIGNITION TEMPERATURE: N/A

GENERAL FIRE HAZARD: None for solid formed product

FLAMMABILITY CLASSIFICATION: N/A

EXTINGUISHING METHOD: For solid formed product, as appropriate for surrounding fire. A fire involving finely divided particles should be treated as a Class D combustible metal fire. Fire should be extinguished by a properly trained and experienced firefighter. Proper care should be taken in applying extinguishing agent and in allowing to burn itself out.

FIRE FIGHTING EQUIPMENT: For solid formed product, as appropriate for surrounding fire. Positive pressure SCBA and structural firefighter's protective clothing should be used at a minimum for surrounding fire.

UNUSUAL FIRE OR EXPLOSION HAZARDS: This solid formed product does not constitute a fire or explosion hazard. Finely divided, suspended particulates may present a fire and explosion hazard in the presence of an ignition source. In addition, applied coatings may be combustible. For fires involving coated product, consult the appropriate coating MSDS.

Finely divided product (e.g. dust, shavings, etc.) may be combustible. May be ignited by heat, sparks, or flames. May burn rapidly with flare-burning effect. Fire may produce irritating or poisonous gases. High concentrations of airborne dust in an enclosed area can explode or burn if exposed to a source of ignition. Care should be taken to avoid the generation of airborne dust. Use of water on finely divided product may cause explosive hydrogen gas and heat to be evolved.

EXPLOSION DATA: *Sensitivity/Mechanical Impact*: N/A for solid product *Sensitivity/Static Discharge*: N/A for solid product

HAZARDOUS COMBUSTION PRODUCTS: N/A for solid formed product. Toxic metal and metallic oxide fumes may be evolved from fires involving finely divided particles and during torch-cutting operations.

INCOMPATIBLE MATERIALS: Oxidizers. Reacts with strong acids to form explosive hydrogen gas and heat.

HAZARDOUS DECOMPOSITION PRODUCTS: Extreme heat from fire or processing (e.g. welding, brazing, machining, etc.) may produce toxic or irritating airborne particulate, including metal and metallic oxide fumes. Reaction of some metals with water, steam, acids, etc. can evolve hydrogen, which is a highly dangerous fire and explosion hazard.

HAZARDOUS POLYMERIZATION: Will not occur

11 - TOXICOLOGICAL INFORMATION

Iron: Excessive exposure of eyes to airborne iron dust can cause conjunctivitis, choroiditis, and retinitis. Chronic inhalation of excessive concentrations of iron oxide fumes or dusts may result in development of a benign pneumoconiosis, called siderosis, which is observable via x-ray. No physical impairment of lung function has been associated with siderosis. Inhalation of excessive concentrations of iron oxide may enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens. LD50 (oral, rat) - 30 gm/kg; LC50 - NIF.

Chromium: The health hazards associated with exposure to chromium are dependent on its oxidation state. The metal form (chromium as it exists in this product) is of low toxicity. The hexavalent form and some trivalent forms are toxic. Adverse effects of the hexavalent form on the skin may include ulcerations, dermatitis, and allergic skin reactions. Inhalation of hexavalent chromium compounds can result in ulceration and perforation of the mucous membranes of the nasal septum, irritation of the pharynx and larynx, asthmatic bronchitis, bronchospasms and edema. Respiratory symptoms may include coughing and wheezing, shortness of breath, and nasal itch. LD50 (oral) - NIF; LC50 - NIF.

Carcinogenicity - Chromium and most trivalent chromium compounds have been listed by NTP as having inadequate evidence for carcinogenicity in experimental animals. According to NTP, there is sufficient evidence for carcinogenicity in experimental animals for the following hexavalent chromium compounds: calcium chromate, chromium trioxide, lead chromate, strontium chromate, and zinc chromate. IARC has listed chromium metal and its trivalent compounds within Group 3 (The agent is not classifiable as to its carcinogenicity to humans). Chromium is not regulated as a carcinogen by OSHA (29 CFR 1910 Subpart Z). ACGIH has classified chromium metal and trivalent chromium compounds as A4, not classifiable as a human carcinogen. Water soluble hexavalent chromium compounds have been classified by ACGIH as A1, confirmed human carcinogen.

Nickel: Nickel fumes are respiratory irritants and may cause pneumonitis. Exposure to nickel and its compounds may result in the development of a dermatitis known as "nickel itch" in sensitized individuals. The first symptom is usually itching, which occurs up to 7 days before skin eruption occurs. The primary skin eruption is erythematous, or follicular, which may be followed by skin ulceration. Nickel sensitivity, once acquired, appears to persist indefinitely. LC50 - NIF; LD50 (oral) - NIF.

Carcinogenicity - Nickel and certain nickel compounds have been listed by NTP as being reasonably anticipated to be carcinogens. IARC has listed nickel compounds within group 1 (there is sufficient evidence for carcinogenicity in humans) and nickel within group 2B (agents which are possibly carcinogenic to humans). Nickel is not regulated as a carcinogen by OSHA (29 CFR 1910 Subpart Z). Based upon epidemiological data, ACGIH (1998) has designated elemental nickel as category A5, not a suspected human carcinogen.

Molybdenum: Based on animal experiments, molybdenum and its compounds are highly toxic. Some evidence of liver dysfunction with hyperbilirubinemia have been reported in workmen chronically exposed in a Soviet Mo-Cu plant. In addition signs of gout have been found in factory workers and among inhabitants of Mo-rich areas of Armenia. The main features were joint pains in the knees, hands, feet, articular deformities, erythema, and edema of the joint areas. LD50 (oral) - NIF; LC50 - NIF.

Silicon: Elemental silicon is an inert material which appears to lack the property of causing fibrosis in lung tissue. However, slight pulmonary lesions have been reported in laboratory animals from intratracheal injections of silicon dust. Silicon dust has little adverse affect on lungs and does not appear to produce significant organic disease or toxic effects when exposures are below permissible limits. Silicon may cause chronic respiratory effects. Crystalline silica (silicon dioxide) is a potent respiratory hazard. However, the likelihood of crystalline silica generation during normal processing is very remote. LD50 (oral) - 3160 mg/kg rat; LC50 - NIF.

Manganese: Chronic manganese poisoning may result from prolonged inhalation of manganese dust and fumes. The central nervous system is the chief site of damage from the disease, which may result in permanent disability. Symptoms include languor, sleepiness, weakness, emotional disturbances, spastic gait, recurring leg cramps, and paralysis. A high incidence of pneumonia and other upper respiratory infections has been found in workers exposed to dust or fume of manganese compounds. Manganese compounds are experimental equivocal tumorigenic agents. LD50 (oral, rat) - 30 gm/kg; LC50 - NIF; TCLo - 2300 $\mu g/m^3$ (man).

Aluminum: Inhalation of finely divided aluminum and aluminum oxide powder has been reported as a cause of pulmonary fibrosis and lung damage. This effect, known as Shaver's Disease, is complicated by the presence in the inhaled air of silica and oxides of iron. May also be implicated in Alzheimer's disease. LD50 (oral) - NIF; LC50 - NIF.

15 - REGULATORY INFORMATION

SARA TITLE III HAZARD CATEGORIZATION: Product (dust and fume) is categorized as an immediate (acute) health hazard and a delayed (chronic) health hazard as defined by 40 CFR 370.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (EHSs): No components are listed as extremely hazardous substances.

SARA TITLE III SECTION 313 REPORTABLE SUBSTANCES: Nickel, Chromium, Cobalt, Aluminum (fume or dust), and Manganese are subject to reporting requirements (Copper is less than the 1% de minimis level).

CERCLA HAZARDOUS SUBSTANCES: Nickel* (threshold 100 lbs.), Chromium* (threshold 5000 lbs.), and Copper* (threshold 5000 lbs.). *Note: CERCLA reporting only if diameter of particles released is less than 100 micrometers.

PENNSYLVANIA R-T-K LIST: Listed components (greater than 0.1 % by weight) - Aluminum (E), Manganese (E), Molybdenum, Nickel (E,S), Silicon, Chromium (E,S), Cobalt (E), Copper (E), and Tungsten. E - environmental hazard, S - special hazardous substance.

NEW JERSEY R-T-K ENVIRONMENTAL HAZARDOUS SUBSTANCE LIST: Listed components - Aluminum (as dust and fume), Chromium, Cobalt, Copper, Manganese, and Nickel.

CALIFORNIA PROPOSITION 65: Listed possible trace (much less than 0.1% by weight) elements known by the state to cause cancer - Arsenic (inorganic), Cadmium, Lead; Listed possible trace elements known by the state to cause reproductive toxicity - Lead; Listed components known by the state to cause cancer - Nickel, Cobalt (metal powder); Listed components known by the state to cause reproductive effects - None.

16 - OTHER INFORMATION

NFPA RATING (for solid formed product): Health: 1 Flammability: 0 Reactivity: 0

HMIS RATING (for solid formed product): Health: 1 Flammability: 0 Reactivity: 0 PPE: B

ABBREVIATIONS/ACRONYMS:

ACGIH	- American Conference of Governmental Industrial Hygienists	NIF	- No Information Found
CAS	- Chemical Abstracts Service	NIOSH	- National Institute for Occupational Safety and Health
CFR	- Code of Federal Regulations	NTP	- National Toxicology Program
CPR	- Cardiopulmonary Resuscitation	OSHA	- Occupational Safety and Health Administration
EST	- Eastern Standard Time	PEL	- Permissible Exposure Limit
HMIS	- Hazardous Materials Identification System	PNOR	- Particulate Not Otherwise Regulated
IARC	- International Agency for Research on Cancer	PNOC	- Particulate Not Otherwise Classified
mg/m3	- milligram per cubic meter of air	POTW	- Publicly Owned Treatment Works
mppcf	- million particles per cubic foot	PPE	- Personal Protective Equipment
MSDS	- Material Safety Data Sheet	ppm	- parts per million
MSHA	- Mine Safety and Health Administration	SCBA	- Self-contained Breathing Apparatus
N/A	- Not Applicable	STEL	- Short-term Exposure Limit
NFPA	- National Fire Protection Association	TLV	- Threshold Limit Value

NIA - No Information Available TWA- Time-weighted Average

NOTE: The percent composition in Section 2 reflects the range that is possible within this GROUP of products. These are not the technical specifications for a particular product. Also, specific grades may not include all of the hazardous ingredients in Section 2.

DISCLAIMER: All information, recommendations, and suggestions appearing herein concerning the product are based upon data believed to be reliable. It is the user's responsibility to determine the safety, toxicity, and suitability for their own use of the product described herein. Since the actual use by others is beyond our control, no guarantee, expressed or implied is made by AM Health and Safety, Inc. (AMH&S-acting consultant) and Allegheny Ludlum as to the effects of such use, the results to be obtained, or the safety and toxicity of the product, nor does AMH&S or Allegheny Ludlum assume any liability arising out of use by others of the product referred to herein. AMH&S and Allegheny Ludlum shall not in any event be liable for special, incidental or consequential damages in connection with this MSDS. This MSDS is not intended as a license to operate under, or recommendation to infringe on, any patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.

This information is not intended to serve as a complete regulatory compliance document. This information is offered as a guide to the MSDS user. No guarantees can be made whether the user will be in complete or correct compliance with all applicable regulations when this MSDS is used. It is the user's responsibility to comply with all federal, state, and local regulations.

PREPARED BY: AM Health and Safety, Inc. (acting consultant)	**REVISION NO.**: 11	**APPROVAL DATE**: September 15, 2004
MFR. CONTACT: M.R. Shirey (724-226-5980)	**SUPERSEDES MSDS DATED**: September 15, 2002	

ALLEGHENY LUDLUM CORPORATION
CROSS INDEX OF GRADES
MATERIAL SAFETY DATA SHEETS

MATERIAL TYPE/ GRADE	UNS NUMBER	OTHER DESIGNATION	CANADIAN MSDS CATEGORY	MSDS CATEGORY	LABEL CATEGORY
2	T31502	AL TOOL STEEL (O-2)	CN-X	VI	AL-1
3	T30402	AL TOOL STEEL, ONTARIO, D2	CN-X	VI	AL-1
4	T30102	AL TOOL STEEL, SAGAMORE, ROLOY NO. 2, A2	CN-IX	IV-B	AL-1
7	T30407	AL TOOL STEEL, D7	-	I-E	AL-1
7 Mo+	S32950	Carpenter 7-MoPLUS	-	I-E	AL-1
9	-	AL ALLOY STEEL, NON-MAG.	-	I-F	AL-1
012	-	ARMOR PLATE, K12	CN X	VI	AL-1
13-8 PH	S13800	AL 13-8 STAINLESS STEEL, XM-13	CN-I	I-B	AL-1
20 Cb-3	N08821	821, SAME AS 339 MOD	CN-XII	III-N	AL-1
25	T72302	AL TOOL STEEL, W-2	CN-X	VI	AL-1
31Cr Mo V	-	-	-	III-L	AL-1
32	T30106	AL TOOL STEEL, APACHE, A6, 211	-	IV-A	AL-1
33-A	S24000	AL33 STAINLESS STEEL, XM-29	-	I-E	AL-1
48	T31501	AL TOOL STEEL, 108	CN-X	VI	AL-1
50	S20910	AL50 STAINLESS STEEL, 22-13-5, XM-19	-	I-A	AL-1
62	S21800	AL STAINLESS STEEL, 21800	-	I-A	AL-1
64	-	AL STAINLESS STEEL, 22-4-9	-	I-A	AL-1
67	-	AL STAINLESS STEEL, 21-11N	-	I-A	AL-1
82	-	AL HOT WORK TOOL STEEL	CN-X	VI	AL-1
82-V	T20813	AL HOT WORK TOOL STEEL, POTOMAC M, DICA B VANAD. H13	CN-X	VI	AL-1
86	-	AL TOOL STEEL, CHIPPER	CN-IX	IV-B	AL-1
104	-	AL TOOL STEEL	CN-IX	IV-B	AL-1
127	-	AL TOOL STEEL - ERG	CN-X	VI	AL-1
136	-	AL TOOL STEEL (L-3 MOD)	CN-X	VI	AL-1
145	T30107	AL TOOL STEEL, SAGAMORE V, BX3 A7	CN-X	VI	AL-1
147	T30107	AL TOOL STEEL	CN-X	VI	AL-1
151	-	AL TOOL STEEL, CRU-WEAR	CN-X	VI	AL-1
152	-	AL TOOL STEEL	CN-X	VI	AL-1
153	T11313	AL HIGH SPEED TOOL STEEL, DBL-2.5, M3	CN-X	VI	AL-1
154	T11302	AL HIGH SPEED TOOL STEEL, MUSTANG, DBL-2, M2	CN-X	VI	AL-1
200	T11302	AL ALLOY STEEL, 200 NON-MAG.	-	I-F	AL-1
200N	-	AL ALLOY STEEL, 200 N NON-MAG.	-	I-F	AL-1
201	S20100	ALLEGHENY STAINLESS STEEL	-	I-A	AL-1
201 (Nickel)	N02201	AL 201 (nickel)	-	III-C	AL-1
201LN	S20153	AL 201LN STAINLESS STEEL	-	I-A	AL-1
201L	S20103	ALLEGHENY STAINLESS STEEL	-	I-A	AL-1
216	S21600	ALLEGHENY STAINLESS STEEL	-	I-A	AL-1
219	S21904	ALLEGHENY STAINLESS STEEL, 21Cr-6Ni-9Mn	-	I-A	AL-1
222	-	AL TOOL STEEL, L2 MODIFIED	-	III-L	AL-1
224	-	AL HOLDER BLOCK STEEL, MAXEL 400 SUPER	CN-X	VI	AL-1
255	S32550	325; AL 255 DUPLEX STAINLESS STEEL	-	I-E	AL-1
259	T41905	AL TOOL STEEL, SHOCK RESISTING, S5	CN-X	VI	AL-1
301	S30100	ALLEGHENY STAINLESS STEEL	CN-I	I-B	AL-1
301L	S30103	ALLEGHENY STAINLESS STEEL	CN-I	I-B	AL-1
302	S30200	ALLEGHENY STAINLESS STEEL	CN-I	I-B	AL-1
302B	S30215	ALLEGHENY STAINLESS STEEL	CN-I	I-B	AL-1
303	S30300	ALLEGHENY STAINLESS STEEL	-	I-A	AL-1
304	S30400	ALLEGHENY STAINLESS STEEL	CN-I	I-B	AL-1
304H	S30409	ALLEGHENY STAINLESS STEEL	CN-I	I-B	AL-1
304L	S30403	ALLEGHENY STAINLESS STEEL, 374L	CN-I	I-B	AL-1
304LN	S30453	ALLEGHENY STAINLESS STEEL	CN-I	I-B	AL-1
304N	S30451	ALLEGHENY STAINLESS STEEL	CN-I	I-B	AL-1
305	S30500	ALLEGHENY STAINLESS STEEL	CN-I	I-B	AL-1
306	S30600	AL 610 Stainless Steel		I-A	AL-1
307	S30601	AL 611 Stainless Steel		I-A	AL-1
309	S30900	ALLEGHENY STAINLESS STEEL	CN-III	I-D	AL-1
309H	S30909	ALLEGHENY STAINLESS STEEL	CN-III	I-D	AL-1
309S	S30908	ALLEGHENY STAINLESS STEEL, 398	CN-III	I-D	AL-1
309Si		ALLEGHENY STAINLESS STEEL, 398	CN-III	I-D	AL-1
310	S31000	ALLEGHENY STAINLESS STEEL	CN-III	I-D	AL-1
310H	S31009	ALLEGHENY STAINLESS STEEL	CN-III	I-D	AL-1

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MATERIAL TYPE/ GRADE	UNS NUMBER	OTHER DESIGNATION	CANADIAN MSDS CATEGORY	MSDS CATEGORY	LABEL CATEGORY
441MOD2	-	ALLEGHENY STAINLESS STEEL, CRUCIBLE	CN-III	I-D	AL-1
443	S44100	441 HP STAINLESS STEEL	CN-VI	II-D	AL-1
444	S44400	ALLEGHENY STAINLESS STEEL, 18-2	CN-VI	II-D	AL-1
446	S44600	ALLEGHENY STAINLESS STEEL	CN-IV	II-A	AL-1
447	S44700	AL 29-4 STAINLESS STEEL	CN-IV	II-A	AL-1
448	S44800	AL 29-4-2 STAINLESS STEEL	CN-IV	II-A	AL-1
449	-	14-4 FERRITIC STAINLESS STEEL	CN-V	II-C	AL-1
452	-	AL 1683 STAINLESS STEEL	CN-IV	II-E	AL-1
453	-	AL 1684 STAINLESS STEEL	CN-IV	II-E	AL-1
458	S44660	T458, 26-3-3	CN IV	II-A	AL-1
460	S44735	AL 29-4C STAINLESS STEEL	CN-IV	II-A	AL-1
465	-	AL 29-4-2C STAINLESS STEEL	CN-IV	II-A	AL-1
466	S40930	AL 466 STAINLESS STEEL	CN-V	II-C	AL-1
467	S41045	AL 409 Cb STAINLESS STEEL	CN-V	II-C	AL-1
468	S46800	AL 468 STAINLESS STEEL	CN-VI	II-D	AL-1
472	S44002	1634	-	II-C	AL-1
520		AL TOOL STEEL	CN-X	VI	AL-1
521		AE 762	CN-X	VI	AL-1
522	-	AL TOOL STEEL, ARMOR PLATE	CN-X	VI	AL-1
529	-	AL TOOL STEEL, ARMOR PLATE	CN-X	VI	AL-1
532	T61206	AL TOOL STEEL, TIOGA, L6	CN-X	VI	AL-1
533	-	-	CN-X	VI	AL-1
601	N06601	SAME AS 6601	CN-VIII	III-F	AL-1
607	N06002	SAME AS 1607	CN-VII	III-A	AL-1
614	T31506	AL OIL HARDENING TOOL STEEL, TRUGLIDE, 06	-	III-L	AL-1
622	N06022	ALTEMP, AL 622	-	III-G	AL-1
625	N06625	ALTEMP 625	CN-VIII	III-F	AL-1
629	S15500	AL 15-5 STAINLESS STEEL, 635, 635T	CN-II	I-C	AL-1
630	S17400	AL 17-4 STAINLESS STEEL, 630T	CN-II	I-C	AL-1
631	S17700	AL 17-7 STAINLESS STEEL	CN-II	I-C	AL-1
632	S15700	AL 15-7 STAINLESS STEEL	CN-II	I-C	AL-1
638	S15500	CSM-21 STAINLESS STEEL	CN-II	I-C	AL-1
639	S15500	ULTRACHEM STAINLESS STEEL	CN-II	I-C	AL-1
650			CN-VIII	III-F	AL-1
665	N10665	ALTEMP ALLOY, AL 665	-	III-P	AL-1
685	N06985	ALTEMP, AL 685	CN-VIII	III-F	AL-1
700	N08700	ALTEMP, JS700	CN-VII	III-A	AL-1
718	N07718	ALTEMP ALLOY	-	III-O	AL-1
750	N07750	X750	CN XIII	VIII	AL-1
800	N08800	AL 800 ALLOY	CN-XII	III-N	AL-1
800 AT	N08811	AL 800 AT ALLOY, SAME AS 811	CN-XII	III-N	AL-1
800H	N08810	AL 800 H ALLOY, SAME AS 810	CN-XII	III-N	AL-1
805			CN-III	I-D	AL-1
808	-	ALTEMP ALLOY STEEL, 19-9-DL	CN-XII	III-N	AL-1
811	N08811	AL 800 AT ALLOY	CN-XII	III-N	AL-1
825	N08825	AL 825	CN-VII	III-A	AL-1
850	S30615	RA85H STEEL FOR ROLLED ALLOYS, 385	CN-I	I-B	AL-1
902	K93600	AL ELECTRICAL STEEL-36, AL36 INVAR	-	III-H	AL-3
904L	N08904	AL 904L STAINLESS STEEL, 4X	CN-XII	III-N	AL-1
905L	K94800	AL 4750 ELECTRICAL ALLOY STEEL	-	III-K	AL-3
913	K92510	AL ELECTRICAL ALLOY STEEL, 22-3	-	III-E	AL-3
916	N14052	AL ELECTRICAL ALLOY 52, AL 52	-	III-H	AL-3
921	K94100	AL ELECTRICAL STEEL-42, AL 42	-	III-H	AL-3
923	N14080	AL ELECTRICAL ALLOY, MOLY PERMALLOY	-	III-J	AL-1
924	K92801	SEALMET 1 ELECTRICAL STEEL	-	III-B	AL-3
940	K94760	SEALMET 4 ELECTRICAL STEEL	-	III-K	AL-3
948	-	SEALMET 485 ELECTRICAL STEEL	-	III-K	AL-3
1006	G10060	SAME AS 5026	-	III-L	AL-1
1205	S66286	ALTEMP ALLOY STEEL, A-286	CN-III	I-D	AL-1
1345	N04400	ALLEGHENY AL 400 ALLOY	-	III-L	AL-1
1449	S44627	E-BRITE 26-1 STAINLESS STEEL, ASTM XM 27	CN-IV	II-A	AL-1

ALLEGHENY LUDLUM CORPORATION
CROSS INDEX OF GRADES
MATERIAL SAFETY DATA SHEETS

MATERIAL TYPE/ GRADE	UNS NUMBER	OTHER DESIGNATION	CANADIAN MSDS CATEGORY	MSDS CATEGORY	LABEL CATEGORY
SIGM	-	AL3, NON-ORIENTED, SEMI-PROCESSED	CN-XI	V	AL-2
SIGM	-	AL3, LOSIL M-47	CN-XI	V	AL-2
SIGM	-	ALCOR, M-45	CN-XI	V	AL-2
SIGM	-	ARMATURE, M-43	CN-XI	V	AL-2
SIGM	-	DYNAMO SPECIAL, M-22	CN-XI	V	AL-2
SIGM	-	DYNAMO, M-27	CN-XI	V	AL-2
SIGM	-	ELECTRICAL, M-36	CN-XI	V	AL-2
SIGM	-	M-19 SPECIAL	CN-XI	V	AL-2
SIGM	-	M-36	CN-XI	V	AL-2
SIGM	-	NMC SILICON STEEL CONVERSION, COATED	CN-XI	V	AL-2
SIGM	-	NMC-A, M-43, .025 GAUGE, GRADE SX-22	CN-XI	V	AL-2
SIGM	-	NMC-B, M-27	CN-XI	V	AL-2
SIGM	-	RELAY NO. 2 (AL Grade 950)	CN-XI	V	AL-2
SIGM	-	RELAY NO. 2SS (AL Grade 951)	CN-XI	V	AL-2
SIGM	-	RELAY NO. 5 (AL Grade 952)	CN-XI	V	AL-2
SIGM	-	RELAY NO. 5SS (AL Grade 953)	CN-XI	V	AL-2
SIGM	-	SUPER DYNAMO	CN-XI	V	AL-2
SIGM	-	TRANSFORMER A, M-15	CN-XI	V	AL-2
SIGM	-	TRANSFORMER C, M-19	CN-XI	V	AL-2
SILEC	-	SEMI-PROCESSED (.007" Gauge)	CN-XI	V	AL-2
SILEC	-	SEMI-PROCESSED (.009" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON (.011" DS-4)	CN-XI	V	AL-2
SILEC	-	SILECTRON (.011" DS-5)	CN-XI	V	AL-2
SILEC	-	SILECTRON, 7 mil .400 WPP max@1.5T@60Hz	CN-XI	V	AL-2
SILEC	-	SILECTRON, 9 mil .915 max w/kg@1.5T@60Hz	CN-XI	V	AL-2
SILEC	-	SILECTRON, EXPERIMENTAL (.009" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-1 (.007" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-1 (.009" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-2	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-2 (.009" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-2-L (.007" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-2.5	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-3 (.007" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-3 (.009" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-3 (.011" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-3-L (.009" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-4	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-4 (.011" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-4 REROLL STOCK (.011" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-5	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-5 (.011" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-5 (.012" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-5 (.012" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-5 (.014" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-6 (.007" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-6 (.009" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-6 (.0136" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-6 REROLL STOCK (.014" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-6f (.011" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-9 (.018" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, M-9 REROLL STOCK (.018" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, PUNCHING QUALITY (.0136" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, PUNCHING QUALITY, M-9 (.018" Gauge)	CN-XI	V	AL-2
SILEC	-	SILECTRON, SHEARING QUALITY (.0136 Gauge)	CN-XI	V	AL-2
SIMIS	-	M-15	CN-XI	V	AL-2
SIMIS	-	MISC. ORIENTED	CN-XI	V	AL-2
SIMIS	-	ORIENTED A	CN-XI	V	AL-2
SX11	-	ORIENTED SILICON	CN-XI	V	AL-2
SX12	-	ORIENTED SILICON	CN-XI	V	AL-2
SX14	-	HI PERM	CN-XI	V	AL-2
SX22	-	RELAY STEEL	CN-XI	V	AL-2

HAZARDOUS MATERIALS LABEL - CATEGORY AL-1

STEEL GRADES OR NICKEL BASED ALLOYS COVERED: 2, 3, 4, 7, 7-Mo+, 9, 012, 13-8PH, 20 Cb-3, 25, 31 Cr Mo V, 32, 33-A, 48, 50, 62, 64, 67, 82, 82-V, 86, 104, 127, 136, 145, 147, 151, 152, 153, 154, 200, 200N, 201, 201L, 201LN, 201(NICKEL), 216, 219, 222, 224, 251, 255, 259, 301, 301L, 302, 302B, 303, 304, 304H, 304L, 304LN, 304N, 305, 307, 309, 309H, 309S, 309 Si, 310, 310H, 310S, 316, 316L, 316LN, 316Ti, 317, 317L, 317LX, 317LXN, 317XN, 321, 321H, 330, 330MOD, 332, 333, 334, 336, 337, 337 MODIFIED, 339, 339MOD, 347, 348, 350, 355, 370, 388, 388 Ze-Cor™, 396, 403, 404, 405, 406, 409, 409Ni, 410, 410HC, 410MOD, 410S, 412, 416, 418Spl, 419, 420, 420HC, 425MOD, 430, 430Ti, 433, 434, 436, 436S, 437, 439, 440A, 440C, 441, 441MOD1, 441MOD2, 443, 444, 446, 447, 448, 449, 452, 453, 458, 460, 465, 466, 467, 468, 472, 520, 521, 522, 529, 532, 533, 601, 607, 614, 622, 625, 629, 630, 631, 632, 638, 639, 650 (ALLCORR), 665, 685, 700, 718, 750, 763Co, 800, 800AT, 800H, 805, 808, 811, 825, 850, 904L, 923, 1006, 13-8 PH, 1205, 1345, 1449, 1607, 1608, 1625, 1626, 1647, 1676, 2200, 2201, 2205, 4335, 4340, 6601, 8825, 52100, A2, A6, A7, A8, A8 MOD, A50, A610, A611, AL 6XN, AL 200, AL 255, AL263, AL 4565, AL 600, AL 2003, ALCORR, ALFA IV, C276, D2, D7, H11, H13, IRON, L6, M217, O1, S7, UDIMET FP, VERA-40

GENERAL HAZARD STATEMENT: Solid metallic products distributed by Allegheny Ludlum are generally classified as "articles" and do not constitute a hazardous material in solid form under the terms of the OSHA Hazard Communication Standard. Any articles manufactured from these solid products would be generally classified as non-hazardous. However, some metallic elements contained in these products have been determined to be toxic and are subject to regulatory controls. These elements can be emitted as airborne contaminants under certain processing conditions such as burning, melting, cutting, sawing, brazing, grinding, milling, machining.

Certain materials and equipment utilized in processing of steel products (cutting/machining fluids, coatings, processing lubricants, cleaning/pickling chemicals, welding fluxes, torch and plasma cutting systems) may constitute a health hazard and should be treated accordingly.

CAUTION

FOR DUST OR FUME FROM WELDING OR OTHER PROCESSING:

MAY CAUSE RESPIRATORY TRACT, SKIN, AND EYE IRRITATION AND/OR SENSITIZATION, AND MAY CAUSE METAL FUME FEVER.

CANCER HAZARD (CONTAINS NICKEL AND CHROMIUM; MAY ALSO CONTAIN COBALT). DELAYED DAMAGE TO LUNGS, KIDNEYS, LIVER, CENTRAL NERVOUS SYSTEM OR OTHER ORGANS MAY OCCUR. RISK OF THESE EFFECTS DEPENDS ON DURATION AND LEVEL OF EXPOSURE.

PRECAUTIONS: Avoid breathing or contact with dust or fume. Adequate ventilation is required while welding burning, melting, cutting, brazing, grinding, and machining. Wear appropriate personal protective equipment.

FIRST AID:

INHALATION - If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

EYE CONTACT - Immediately flush eyes with plenty of water (for at least 15 minutes). Get medical attention.

SKIN CONTACT - If dust gets on skin, wash contaminated area with soap and water. Remove and wash contaminated clothing. Get medical attention if irritation develops and persists.

INGESTION - If large quantities of dust are swallowed, get medical attention immediately. Do NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person.

For additional information refer to appropriate AL Material Safety Data Sheet.

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