MSDS # 000067

MATERIAL SAFETY DATA SHEET
("Essentially Similar" to Form OSHA-174)
REYNOLDS METALS COMPANY R-1067-19

DATE PREPARED	REVISION DATE	MSDS #
8/02/90	9/24/93	5134

SECTION 1 - MATERIAL IDENTIFICATION

MANUFACTURER: Reynolds Metals Company
P. O. Box 27003
Richmond, Virginia 23261-7003

EMERGENCY TELEPHONE NUMBER:
(804) 281-2265

PRODUCT CLASS: Alclad and Cladding Products
TRADE NAME: 4XXX Series Alloys (cladding)

MANUFACTURER'S CODE IDENTIFICATION
4XXX Series

SECTION 2 - HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Ingredients	Typical Percent	OSHA PEL Gas ppm	OSHA PEL Respirable Dust/Mist mg/m³	OSHA PEL Total Dust mg/m³	ACGIH TLV Gas ppm	ACGIH TLV Respirable Dust/Mist mg/m³	ACGIH TLV Total Dust mg/m³	CAS Numbers
Aluminum *	min 81.0		5	15		5	10	7429-90-5
Silicon	max 13.5		5	15			10	7440-21-3
Iron	max 1.0		10			5		7439-89-6
Copper *	max 4.7		0.1	1		0.2	1	7440-50-8
Magnesium	max 2.0		5	15		10		7439-95-4
Chromium *	max 0.15			1			0.5	7440-47-3
Nickel *	max 1.3			1			0.05	7440-02-0
Zinc *	max 1.5		5	15		5	10	7440-66-6

*On SARA Section 313 list.

SECTION 3 - PHYSICAL DATA OF MATERIAL

BOILING POINT: N/A
SPECIFIC GRAVITY: 2.5-2.9
VAPOR PRESSURE: N/A
VAPOR DENSITY: N/A
COEFFICIENT OF WATER/OIL DIST: N/A
ODOR THRESHOLD: N/A

FREEZING POINT: 552-626C
SOLUBILITY IN WATER: N/A
PHYSICAL STATE: Solid
pH: N/A
EVAPORATION RATE: N/A
APPEARANCE/ODOR: Odorless, silvery gray color

20609100040

SECTION 4 - FIRE AND EXPLOSION HAZARD OF MATERIAL

FLAMMABILITY: YES? NO? X
FLASH POINT (Method Used): N/A

WHAT CONDITIONS? N/A
UEL: N/A
LEL: N/A

MEANS OF EXTINCTION:
This product is non-combustible in bulk form. For fires involving aluminum fines or chips, use dry sand or Cla extinguishing agents approved for this use. DO NOT USE water or other liquids, foam, or halogenated extinguishing agents.

SPECIAL PROCEDURES:
Suspended aluminum dust, allowed to accumulate in a confined area, may be explosive. If remelted, moistur present in cavities or on external surfaces may cause an explosion.

AUTO IGNITION TEMPERATURE: N/A

HAZARDOUS COMBUSTION PRODUCTS: None know

SENSITIVITY TO IMPACT: None known

SENSITIVITY TO STATIC DISCHARGE: None known

ND = NOT DETERMINED N/A = NOT APPLICABLE

SECTION 5 - REACTIVITY DATA

CHEMICAL STABILITY: Stable

REACTIVITY AND UNDER WHAT CONDITIONS:

If remelted, moisture present in cavities or on external surfaces may cause an explosion. Bulk aluminum dust when damp may heat spontaneously.

INCOMPATIBILITY TO OTHER SUBSTANCES: YES

For aluminum fines: water, some acids, alkalis, and halogenated compounds. See NFPA#491M for specific incompatible materials. National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

HAZARDOUS DECOMPOSITION PRODUCTS:

Finely divided aluminum reacts with water, some acids, and alkalis to produce hydrogen gas. Aluminum in contact with halogenated compounds can produce violent reactions and/or explosions.

SECTION 6 - TOXICOLOGICAL PROPERTIES OF PRODUCT

ROUTE(S) OF ENTRY: INHALATION? YES INGESTION? NO
EYE CONTACT? YES SKIN ABSORPTION? NO

EFFECTS OF ACUTE EXPOSURE:

Aluminum is considered a nuisance particulate. Welding or machining aluminum may generate dusts and fumes which may cause eye, nose, and throat irritation. Some welding operations on these alloys may liberate sufficie copper fume to exceed the exposure limit. Inhalation of excess copper fume may cause irritation of the respiratory tract and metal fume fever. Symptoms of metal fume fever include chills, fever, nausea, chest tightness, or metallic taste. Ozone may be emitted as a by-product during welding or plasma arc cutting. Exposure to ozone may produce irritation to eyes, nose, and throat. Welding and/or plasma arc cutting of aluminum alloys generates ultraviolet radiation which can cause skin burns or welders flash to unprotected skin and eyes.

EFFECTS OF CHRONIC EXPOSURE:

Prolonged exposure to ozone may result in nausea, headache, and pulmonary damage. Nickel, chromium and certain of their compounds are classified as carcinogens in the latest Annual Report on Carcinogens as publishe by the National Toxicology Program (NTP) and by the International Agency for Research on Cancer (IARC).

LD50 OF PRODUCT:

Aluminum	- Not known
Silicon	- orl-rat 3160mg/kg
Iron	- Not known
Copper	- ipr-mus 3.5mg/kg
Magnesium	- Not known
Chromium	- Not known
Nickel	- Not known
Zinc	- Not known

LC50 OF PRODUCT:

Aluminum	- Not known
Silicon	- Not known
Iron	- Not known
Copper	- Not known
Magnesium	- Not known
Chromium	- Not known
Nickel	- Not known
Zinc	- Not known

2060910041

IRRITANCY OF PRODUCT: Mild

EXPOSURE LIMITS OF PRODUCT:

Use levels for specific ingredients shown i Section 2.

SENSITIZATION TO PRODUCT: Skin - Nickel

SYNERGISTIC MATERIALS: None known

CARCINOGENICITY: NTP, IARC, ACGIH

REPRODUCTIVE EFFECTS: None known

TERATOGENICITY: None known

MUTAGENICITY: None known

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

Pre-existing upper respiratory and lung diseases such as, but not limited to, Bronchitis, Emphysema, Asthma, ar Wilson's Disease.

#0000607

SECTION 7 - PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT:

GLOVES: As needed.

EYEWEAR: Safety glasses, goggles, face shield, or welding helmet, etc., as needed.

RESPIRATORY: Use NIOSH/MSHA-approved respirator for dusts/fume/mist, if TLVs or PELs are exceeded.

FOOTWEAR: Safety shoes, as needed.

CLOTHING:
Appropriate welding protective equipment. If remelted, see Aluminum Association publication "Guidelines for Handling Molten Aluminum", #69. The Aluminum Association, 900 19th St., N.W., Suite 300, Washington, D. 20006.

ENGINEERING CONTROLS:
If ventilation is used to convey aluminum dust, generated by grinding, sawing, etc., special ventilation procedur may be necessary to avoid explosion hazards. See National Fire Protection Association codes #65 and #651 (S address in Section 5).

LEAK AND SPILL PROCEDURE: If remelted, see Aluminum Association publication #69 listed above.

WASTE DISPOSAL:
For disposal of this material as a waste, act in accordance with all applicable federal, state, and local waste management regulations.

HANDLING PROCEDURES AND EQUIPMENT: See Aluminum Association publication #69 listed above.

STORAGE REQUIREMENTS: If remelted, make certain no water or moisture is present in cavities or on external surfac

SPECIAL SHIPPING INFORMATION: None known

SECTION 8 - FIRST AID MEASURES

SKIN: For minor burns, apply cold water. For severe burns, seek immediate medical attention.

EYE: Immediately flush with water for 15 minutes. Seek medical attention if irritation persists.

INHALATION: Remove to fresh air.

INGESTION: None necessary.

2060910042

SECTION 9 - SPECIAL PRECAUTIONS AND COMMENTS

SARA
This product contains a chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendents and Reauthorization Act of 1986 and 40 CFR 372.

HMIS RATINGS
Health: 1
Flammability: 1
Reactivity: 1

R-342-83(2) (Rev. 11-91)

Label No. 5134

ALCLAD AND CLADDING PRODUCTS

4xxx Series Alloys (Cladding)

WARNING: This product is not a physical or health hazard in bulk form. Welding or machining aluminum may generate dusts and fumes which may cause eye, nose, and throat irritation. Ozone may be emitted as a by-product during welding or plasma arc cutting. Prolonged exposure to ozone may result in nausea, headache, and lung damage. Suspended aluminum dust, allowed to accumulate in a confined area, may be explosive. Nickel and chromium are listed by the International Agency for Research on cancer and the National Toxicology Program as carcinogens.

Molten metal can explode — If remelted, make certain no water or moisture is present in cavities or on external surfaces.

For further information, refer to Reynolds Material Safety Data Sheet.

Ingredients	CAS Number
Aluminum	7429905
Silicon	7440213
Iron	7439896
Copper	7440508
Magnesium	7439954
Chromium	7440473
Nickel	7440020
Zinc	7440666

REYNOLDS METALS COMPANY
P. O. Box 27003
Richmond, Virginia 23261-7003

This label is required by the OSHA Hazard Communication Standard.

20609100 44

#00067-5