Material Safety Data Sheet

Product name	Aluminium(1100)

1. Product and company identification

Product	Aluminium wrought metal, A1100 series alloys
Various fabricated aluminum parts and product	Aluminium coil
Chemical Formula	Mixture
Supplier Information	
Manufacture's Name	DONG-IL ALUMINIUM CO., LTD
Address	160, seonggeo-gil, seonggeo-eup, seobuk-gu, Cheonan-si, Chungnam, KOREA
Telephone	+82-41-559-2271

2. Hazards identification, including emergency overview

NFPA Rating	Health = 0 , Flammability = 0 , Reactivity = 0
Pictograph	
Emergency overview	Solid. Silver colored. Odorless. Non-combustible as supplied. Small chips, fine turnings and dust from processing may be readily ignitable. Explosion/fire hazards may be present when (See Sections 5, 7 and 10 for additional information): • Dust or fines are dispersed in air. • Chips, dust or fines are in contact with water. • Dust and fines are in contact with certain metal oxides (e.g., rust, copper oxide).
Potential health effects	No information found
Eye contact	Dust and fumes from processing: Can cause irritation.
Skin contact	Contact with residual oil/oil coating: Can cause irritation. Prolonged or repeated skin contact may cause dermatitis. Dust and fumes from processing: Can cause irritation. Prolonged or repeated skin contact may cause sensitization and allergic contact dermatitis.
Inhalation	For dust exposure : If irritation or oher pulmonary symptoms persist, seek medical attention.
Ingestion	Not applicable.

3. Composition / Information on ingredients

Product/Ingredient name	Identifiers	Classification		%
		67/548/EEC	Regulation (EC) no. 1272/2008 [CLP]	
Aluminium	REACH#.05-2116753684-35 EC : 231-072-3 CAS : 7429-90-5	Not Classified.	Not Classified.	99↑
Copper	REACH#.05-2116754263-46 EC : 231-159-6 CAS : 7440-50-8	Not Classified.	Not Classified.	0.05~0.20
Iron	REACH#.05-2116610284-55 EC : 231-096-4 CAS : 7439-89-6	Not Classified.	Not Classified.	0.95↓
Silicon	REACH#.05-2116749806-31 EC : 231-130-8 CAS : 7440-21-3	Not Classified.	Not Classified.	
Manganese	REACH#.05-2116750366-42 EC : 231-105-1 CAS : 7439-96-5	Not Classified.	Not Classified.	0.05↓
Zinc	REACH#. 05-2114673989-20 EC : 231-175-3 CAS : 7440-66-6	Not Classified.	Not Classified.	0.1↓

4. First Aid Measures

Eye contact	Dust and fumes from processing: Rinse eyes with plenty of water or saline for at least 15 minutes. Consult a physician.
Skin contact	Dust and fume from processing or contact with lubricant/residual oil: Wash with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.
Inhalation	Dust and fumes from processing: Remove to fresh air. Check for clear airway, breathing, Consult a physician

5. Fire Fighting Measures

Extinguishing media	
Suitable extinguishing media	Use Class D extinguishing agents on fines, dust or molten metal. Use coarse water spray on chips and turnings.
Unsuitable extinguishing media	Water, foam, halogenated extingguishing agents.
Advice for firefighters	
Hazards from the substance or mixture	No specific fire or explosion hazard.
Special protective actions for fire-fighters	promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. no action shall be taken involving any personal risk or without suitable training. aluminium may lose structural strength when subject to fire and will melt to a hazardous liquid at temperatures in the range of 480~660 degrees celsius(dependent on the alloy composition).

6. Accidental Release Measures

Spill or leak procedure	Collect scrap for recycling. If molten: Contain the flow using dry sand or salt flux as a dam. All tooling (e.g., shovels or hand tools) and containers which come in contact with molten metal must be preheated or specially

7. Handling and Storage

Protective measures	Use standard techniques to check metal temperature before handling. Hot aluminium does not present any warning color change. Exercise great caution, since the metal may be hot. For more information on the handling and storing of aliminium, consult the following documents published by the Aluminium Association, 1525 Wilson Blvdm Suite 600, Arlingon, VA 22209(www.aluminium.org) : - Guidelines for handling molten aluminium. - Recommendations for storage and handling of aluminium poders and pastes. - Guidelines for handling aluminium fines generated during various aluminium fabricationg operations. See also "National Fire Protection Association Codes" : NFPA 484 : Standard for Combustible Materials.

8. Exposure Controls / Personal Protection

Engineering controls	Dust and fumes from processing: Use with adequate explosion-proof ventilation designed to handle particulates to meet the limits listed in Section 8, Exposure Guidelines.

Occupational exposure limits

Product/ingredient name	Exposure limit values
Aluminium	ACGIH TLV (United Statesm 2/2010). TWA : 1 mg/m3 8 hour(s). From : Respirable fraction; see Appendixc
Managese	ACGIH TLV (United Statesm 2/2010). TWA : 0.2 mg/m3 8 hour(s)
Silicon	Arbejdstllsynet (Denmark, 3/2008). TWA : 10 mg/m3 8 hour(s) Arbejdstllsynet(Norway, 3/2009). TWA : 10 mg/m3 8 hour(s) Sotsiaalminister (Estonia, 10/2007). TWA : 10 mg/m3 8 hour(s) TWA : 5 mg/m3 8 hour(s). From : Inhalable dust NAOSH (Ireland, 8/2007). OELV-8hr : 10 mg/m3, (as Si) 8 hour(s). From : Inhalable dust OELV-8hr : 4 mg/m3, (as Si) 8 hour(s). From : Resoirable dust LV Nat. Standardisation and Meterological Centre(Latvia, 5/2007). TWA : 4 mg/m3 8 hour(s) EH40/2005 WELs(United Kingdom (UK), 8/2007). TWA : 10 mg/m3 8 hour(s). From : Inhalable dust TWA : 4 mg/m3 8 hour(s). From : Respirable dust INSHT(Spain, 3/2010). TWA : 10 mg/m3 8 hour(s). From : Inhalable fraction. TWA : 4 mg/m3 8 hour(s). From : Respirable fraction. PD 90/1999(Greece, 8/2007). TWA : 10 mg/m3 8 hour(s). From : Inhalable fraction. TWA : 5 mg/m3 8 hour(s). From : Respirable fraction. SUVA(Switzerland, 1/2009). Oxygen Depletion [Asphyxlant]. TWA : 3 mg/m3 8 hour(s). From : Respirable dust Lijst Grenswaarden / Valeurs Limites(Belgium, 6/2009). TWA : 10 mg/m3 8 hour(s). INRS(France, 12/2007). Notes : Indicative exposure limits. TWA : 10 mg/m3 8 hour(s). From : Dust
Copper	ACGIH TLV(United States, 2/2010). TWA : 1 mg/m3, (as Cu) 8 hour(s). TWA : 0.2 mg/m3 8 hour(s). From : Fume

Iron	P6 MTCN n M3 Hapea6a No 13/2003(Bulgaria, 8/2007). Limit value 8 Hours : 6 mg/m3 8 hour(s). From : Dust, Inhalable fraction. PO Mnh3apaCou, NAK (RU, 2/2004). TWA : 10 mg/m3 8 Hour(s). From : aerosol Nariadenie Vlady Slovenskej republiky(Slovakia, 6/2007). TWA : 6 mg/m3 8 hour(s). From : compact aerosols MZCR PEL/NPK-P(Czech Republic, 3/2010). TWA L 10 mg/m3 8 hour(s). From : Dust

Exposure controls

Appropriate engineering controls	Special ventilation should be used to convey finely divided metallic dust generated by grinding, sawing or polishing operations, in order to eliminate explosion hazards. Matintain dust concentration in ventilation ducts below the lower explosive limit of 40g/m3(0.04 oz/ft 3).

Individual protection measures

Eye/face protection	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashesm mists, gases or dusts. Recommended : Face shield.
Skin protection	
Hand protection	Use strong, cut-resistant gloves suitable for handling metals. Wear suitable gloves.
Body protection	No special protective clothing is required. Recommende : For handling molten metal : Clothing must be resistant to drops of molten metal and radiant heat.
Environmental exposure controls	Recommended : If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid.[Metal]
Colour	Silvery grey
Odour	Odourless.
Odour threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	482 to 660℃
Initial boiling potin and boiling range	Not applicable.
Flash point	Not applicable.
Flammability(solid, gas)	Not applicable.
Burning time	Not applicable.
Burning rate	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Bulk density	Not applicable.
Relative density	2.5 to 2.9
Solubility(ies)	Insholuble in the following materials : cold water, hot water, methanol, diethyl ether, n-octanol and acetone.
Partition coefficient : n-octanol/water	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Viscosity	Not applicable.
Explosive properties	Not applicable.
Oxdising properties	Not applicable.
Other information	No additional information.

10. Stability and reactivity

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reaction will not occur. Fine dust presents an explosion hazard if dispersed in air at high concentrations.
Conditions to avoid	In the form of particles, may explode when mixed with halogenated acids, halogenated solvents, bromates, iodates or ammonium nitrate. Aluminium particles on contact with copper, lead, or iron oxides can react vigorously with release of heat if there is a source of ignition or intense heat.
Incompatible materials	In the form of particles, may explode when mixed with halogenated acids, halogenated solvents, bromates, iodates or ammonium nitrate. Aluminium particles on contact with copper, lead, or iron oxides can react vigorously with release of heat if there is a
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Aluminium	LC50 Inhalation Dusts and mists	Rat	>2350 mg/l	4 hours
	Dermal	Rat	No effect level.	–
	LD50 Oral	Rat	>5000 mg/kg	–

Conclusion/Summary	No known significant effects or critical hazards.
Irritation/Corrosion	
Eyes	Not applicable for solid metal form. Aluminium dust may cause eye discomfort and irritation.
Sensitisation	
Skin	Non-sensitiser.
Respiratory	Non-sensitiser.
Mutagenicity	
Conclusion/Summary	No mutagenic effect.
Carcinogenicity	
Conclusion/Summary	No carcinogenicity effect.
Reproductive toxicity	
Conclusion/Summary	Not considered to be toxic to the reproductive system.
Teratogenicity	
Conclusion/Summary	No teratogenic effect.
Specific target organ toxicity (single exposure)	

Product/ingredient name	Category	Route of exposure	Target organs
No known significant effects or critical hazards.			

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
No known significant effects or critical hazards.			

Aspiration hazard	Not applicable.
Information on the likely routes of exposure	Routes of entry anticipated : Inhalation.
Potential acute health effects	
Eye contact	Not applicable.
Inhalation	Not applicable.
Skin contact	Contact with hot material causes thermal skin burns.
Ingestion	Not applicable.
Symptoms related to the physical, chemical and toxicological characteristics	
Eye contact	No specific data.
Inhalation	No specific data.
Skin contact	No specific data.
Ingestion	No specific data.
Delayed and immediate effects and also chronic effects from short and long term exposure	
Short term exposure	
Potential immediate effects	No specific data.
Potential delayed effects	No specific data.
Long term exposure	
Potential immediate effects	No specific data.
Potential delayed effects	No specific data.
Potential chronic health effects	
Conclusion/Summary	No known significant effects or critical hazards.
General	No known significant effects or critical hazards. Not applicable for metal solid form. Prolonged over exposure to fine aluminium dust may cause pneumoconiosis and pulmonary fibrosis. Case study reports of disease due to sole exposure to vaporized aluminium are old and rare.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.

12. Ecological effects

Environmental effects	No information found
Environmental toxicity	No information found

13. Disposal considerations

Methods of disposal	Recycle, if possible. The generation of waste should be avoided or minimised wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.
Hazardous waste	Within the presend knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC
Special precautions	Not applicable.

14. Transport information

UN number	ADR/RID	AND/ADNR	IMDG	IATA
UN proper shipping name	Not regulated.	Not regulated.	Not regulated.	Not regulated.
Transport hazard class	-	-	-	-
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.
Special precaution for user	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Additional information	-	-	-	-

14. Transport information

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

EU Regulation (EC) No. 1907/2006(REACH)

Annex XIV - List of substances subject to authorisation

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions	Not applicable.

Other EU Regulations

Europe inventory	All components are listed or exempted.
Black List Chemicals	Not listed.
Priority List Chemicals	Not listed.
Integrated pollution Prevention and control list(IPPC) - Air	Listed.
Integrated pollution Prevention and control list(IPPC) - Water	Listed.

International regulations

Chemical Weapons Convention List Schedule I	Not listed.
Chemical Weapons Convention List Schedule II	Not listed.
Chemical Safety Assessment	Complete.

15. Other information

Abbreviations and acronyms	ATE = Acute Toxicity Estimate CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] DNEL = Derived No Effect Level EUH statement = CLP-specific Hazard statement PNEC = Predicted No Effect Concentration RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]	Classification	Justification
	Not classified.	

Full text of abbreviated H statements	Not applicable.
Full text of classifications[CLP/GHS]	Not applicable.
Full test of abbreviated R phrases	Not applicable.
Full text of classifications[DSD/DPD]	Not applicable.
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Version	

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