Safety Data Sheet

1. Identification

Product name	Aluminium paste MS-750
Name of manufacture:	TOYO ALUMINIUM K.K.
Name of section	QUALITY ASSURANCE DEPT
Address	MIDOSUJI DAIWA BLDG, 6-8, KYUTAROMACHI 3-CHOME, CHUO-KU, OSAKA, 541-0056, JAPAN
Telephone number	81-745-69-3489
Fax number	81-745-69-6859
Emergency telephone number	81-745-69-3091(SHINJO works)
Recommended uses	Aluminium pigment for paint

Date of revision: June 5, 2015
Date of issue: June 1, 2012

2. Hazard identification

・Hazard classification

Physical Hazards	Not Applicable	
Health Hazards	Skin corrosion/irritation	Category 2
	Serious eye damage / eye irritation	Category 2A
	Skin sensitizer	Category 1
	Specific target organ systemic toxicity (single)	
	Category 1 (blood) / Category 2 (eye)	
	Category 3 (anesthetizing, respiratory irritation)	
	Specific target organ systemic toxicity (repeated)	
	Category 1 (blood, eye, nose) / Category 2 (liver, testicle)	
Environmental Hazards	Acute hazards to the aquatic environment	Category 1
	Chronic hazards to the aquatic environment	Category 1

Hazards that aren't written as the above are "Can't classify" or "Off the subject".

・GHS Label elements

Pictogram

Signal word: Danger

Hazard statement:
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H319 Causes serious eye irritation
H335 May cause respiratory irritation
H336 May cause drowsiness and dizziness
H370 Cause damage to blood
H371 May cause damage to eye
H372 Cause damage to blood, eye, nose through prolonged or repeated exposure
H373 May cause damage to liver, testes through prolonged or repeated exposure
H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects

Precautionary statements: Obtain special instructions before use. (P201)

Prevention:
Do not handle until all the safety precautions have been read and understood. (P202)
Keep away from ignition sources such as heat/sparks/open flame.-No smoking. (P210)

	Ground/bond container and receiving equipment. (P240)
	Avoid breathing mist/vapour/spray. (P261)
	Wash the hands thoroughly after handling. (P264)
	Do not eat, drink or smoke when using this product. (P270)
	Use only outdoors or in a well-ventilated area. (P271)
	Avoid release to the environment. (P273)
	Wear protective gloves and eye/face protection. (P280)
	Wear designated personal protective equipment. (P281)
Response	IF INHALED: If you feel unwell, call a doctor. (P304+P312)
	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. (P304+P340)
	IF exposed or concerned get medical advice/attention. (P308+P313)
	If you feel unwell, get medical attention. (P314)
	In case of fire: Use appropriate extinguisher to extinguish. (P370+P378)
	Collect spillage. (P391)
Storage	Store in a well-ventilated place. (P403+P233)
	Store locked up. (P405)
Disposal	Commission the disposal to industrial waste disposer approved by regional governor. (P501)

3. Composition/information on ingredients

Classification of the substance or mixture：Mixture

Chemical Name	Composition (%)	CAS No.
Aluminium flake	38～41	7429-90-5
Oleic acid	Max 2	112-80-1
Kerosine (Petroleum), Hydrodesulfurized	20～25	64742-81-0
Solvent naphtha (petroleum), light aromatic	35～40	64742-95-6

4. First-aid measures

IF INHALED:	Remove victim to fresh air and keep at rest and get medical attention.
IF ON SKIN:	Remove contaminated clothing/shoes, wash contaminated area with clean running water and soap. If inflammation or pain occurs, get medical attention/advice.
IF IN EYES:	Immediately rinse with plenty of clean running water for 15 minutes or more and get medical attention/advice.
IF SWALLOWED:	Remove materials in mouth and get medical attention/advice.
Protection of the person who gives the first aid:	In case of inhalation, first aid provider should wear protective mask, in case of skin contact, wear protective equipment such as rubber gloves. Wear protective glasses if necessary.
Special precautions for medical doctor:	Not specifically

5. Fire-fighting measures

Extinguishing media: Powder extinguisher, carbon dioxide gas, dry sand, glass fiber clothing

Unsuitable extinguishing media: Water, extinguishing media containing water, halogen extinguishing media

Specific hazards:
May generate irritative and/or toxic gas by fire.
Burn if intensively heated.
May cause extremely dangerous explosion especially in closed environment (building, ware house etc.).
Package may explode by heat.
Dust or fume may form explosive mixture gas with air.
May ignite by friction, heat, spark or flame.

Specific fire-fighting method:
Use powder extinguisher or carbon dioxide gas at early stage of fire where only solvent is burning.
At the final stage of fire, aluminum powder will ignite and burn with white light with releasing large heat. Try smothering extinguishment by covering the origin of fire by dry sand, glass cloth at this stage of fire. Continue smothering extinguishment until aluminum get cold because inside may be still burning without flame even when it seems to be extinguished.
Treat or transport burned aluminum powder after confirming the inside temperature did not rise after one day.
Product that is not burning should be removed promptly to safe place.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:
Wear appropriate protective equipment (see 8. Exposure control/personal protection) and avoid contact with eye/skin and inhalation of gas.

Environmental precautions: Do not release leakage to river or sewage directly.

Recovery and neutralization: When leaked from the package wipe with cloth (waste cloth) and store in sealed package where no water, acid or alkali exists. Dispose of as industrial waste.

Methods and materials for containment and cleaning up:
Stop leakage, if safe to do so.

Prevention of secondary disaster: Use equipment that do not cause spark.
Avoid flowing into drainage, sewage or the basement and other closed places.

7. Handling and storage

[Handling]

Local exhaust/total ventilation: Install equipment described in '8. EXPOSURE CONTROLS/PERSONAL PROTECTION'.

Special precautions:
Do not handle until all the safety precautions have been read and understood.
Prohibit using high temperature material, spark or fire in surrounding area.
Do not eat, drink or smoke when using this product.
Wash the hands thoroughly after handling.
Avoid swallow and contact with skin.
Use only outdoors or in a well-ventilated area.
Do not breathe dust, fume, gas, mist, vapor, spray.
Install ventilation for exhaust to keep the concentration in the air below the exposure limit.
Avoid release to the environment.
In case package swells by abnormal inner pressure:
-Package with degassing bulb on lid; Loosen the bulb gradually. Open after reducing pressure to the atmosphere pressure.
-Package without degassing bulb on lid; Hold the lid so that it will not fly and decrease pressure by gradually loosening handle lever and open.

[Storage]

Engineering measures:
In the store room, install the day lighting, lighting, and ventilating equipment needed for storing or handling hazardous substances.
Apply the fireproof structure to walls, pillars and floors of the storage room. Use noncombustible material for beams.
For floors of the storage room, apply a structure that prevents water influx/infiltration.

Storage conditions:
Store away from ignition sources such as heat, spark or fire.-No smoking.
Store away from oxidizing agent.
Store in sealed container at fixed place where protection from light and ventilation are adequate and temperature and humidity are appropriate.

Container material: Use containers specified by Fire Service Law or UN transport regulation.

8. Exposure controls/personal protection

Administrative level, acceptable concentration limit

	Administrative level	Acceptable concentration limit	ACGIH
Aluminum	-	[Acceptable concentration limit of dust] (type 1dust) Inhalable dust 0.5mg/m3 Total dust 2mg/m3	TWA 1mg/m3 (R), STEL -
Kerosine (Petroleum), Hydrodesulfurized	-	-	TWA 525ppm, STEL -

Facility measures: Use explosion-proof electrical/ventilating/lighting equipment.
When dust/fume/mist/gas is generated at high temperature install ventilation equipment to keep concentration of air pollutant below administrative level/acceptable concentration limit.
Handle in the place where total ventilation is installed.
General proper ventilation is good for control the concentration in the air.

Protective equipment:

Respiratory organ: In case ventilation is not adequate, wear appropriate respiratory protection.
Use personal respiratory protective equipment as required.

Hand: Use personal protective gloves as required..

Eye: Wear appropriate eye protection.

Skin and body: Wear appropriate face protection..
Use personal antistatic protective clothing and protective mask as required.

Hygienic measures: Wash the hands thoroughly after handling.

9. Physical and chemical properties

Appearance;	Silver–white solid (paste)
Odor;	Petroleum odor
Odor threshold;	N.A.
pH;	No data
Melting point/freezing point;	N.A.
Initial boiling point and boiling range;	Refer to below table
Flash point;	Refer to below table
Evaporation rate;	N.A.
Flammability (solid);	N.A.
Upper/lower flammability or explosive limits;	Refer to below table
Vapor pressure;	Refer to below table
Vapor density;	N.A.
Relative density;	1.1(calculated)
Solubility;	Insoluble
Partition coefficient: n-octanol/water;	N.A.
Auto-ignition temperature;	Refer to below table
Decomposition temperature;	N.A.
Viscosity;	N.A.

Components	Flash point (°C)	Ignition point (°C)	initial boiling point (°C)	Boiling point (°C)	Vapour pressure	Density	Explosion limit	
							Upper	Lower
Kerosine (Petroleum), Hydrodesulfurized	40 - 45	Ca. 245	130	130 - 200	Ca. 5mmHg (20°C)	3 - 4 (Air=1)	4.9%	0.8%

10. STABILITY AND REACTIVITY

Stability: Stable in air or under light shielded condition.

Hazardous/harmful reactivity: React with water, acid, alkali, oxidizing agent metal oxide, halogen compound and generate hydrogen gas.
Heat accelerates the reaction. Sealed container elevates inner pressure and may burst or the content may blow out and it is especially dangerous.

Conditions to avoid: Organic solvent in the product may evaporate when temperature is elevated. Avoid contact with flame, spark, high temperature material and heating.

Incompatible materials: Avoid contact with water, acid, alkali , oxidizing agent (peroxide, sulfuric acids etc), metal oxides (iron oxide etc.), halogen compounds (chlorine carbon hydrides).

Hazardous decomposition products:
May generate hydrogen gas.

11. TOXICOLOGICAL INFORMATION

Acute toxicity: Acute toxicity estimate value is more than 5000mg/kg and classified as Classification not possible.
Oral LD_{50}, Rat 5000mg/kg or more (Kerosine (Petroleum), Hydrodesulfurized)
Skin corrosion/irritation: Category 2 is more than 10% and classified as Category 2.
Serious eye damage /eye irritation:
Category 2A is more than 10% and classified as Category 2A.
Respiratory or skin sensitization: Category 1 is more than 0.1% and classified as Category 1.
Specific target organ systemic toxicity (single exposure):
Category 1 (blood) is more than 1% and classified as Category 1 (blood).
Category 2 (eye) is more than 1% and classified as Category 2 (eye).
Category 3 (narcotic effect, irritation to respiratory tract) is more than 20% and classified as Category 3 (narcotic effect, irritation to respiratory tract).
Specific target organ systemic toxicity (repeated exposure):
Category 1 (blood, eye, nose) is more than 1% and classified as Category 1 (blood, eye, nose).
Category 2 (liver, testis) is more than 1% and classified as Category 2 (liver, testis).

12. Ecological information

Environmental hazard (Acute): Category 1 is more than 25% and classified as Category 1.
Environmental hazard (Chronic): Category 1 is more than 25% and classified as Category 1.
Ecotoxicity: Crustacea (Daphnia magna) 48hours LC50 0.42-2.3mg/L
(Kerosine (Petroleum), Hydrodesulfurized)
Persistence and degradability: No information at this point
Bioaccumulation: No information at this point
Mobility in soil: No information at this point
Other hazards: No information at this point

13. Disposal considerations

Disposal: Do not reuse empty package.
Do not put sealed container in a flame. Do not weld or melt down.
When dispose of waste product and empty container commission to legally approved industrial waste disposer.
Contaminated container and packing:
Confirm that there is not breakage, corrosion, leakage etc. of the package.
Pile containers in a way that does not cause falling, tumbling or breakage.
Put appropriate cover to avoid direct sunlight and penetration of rain.
Transfer the container avoiding significant friction or shaking.
Pack, label and transfer according to related regulations.

14. Transport information

Land Transportation: Comply with regulations.
When aluminum paste significantly leak and there is a risk of fire during transportation take precautionary measures to prevent the fire and inform nearest fire service station..
Marine transportation: Comply with regulations.
Air transportation: Comply with regulations.
International regulation: UN class 9
UN number 3077
Proper shipping name:
Environmentally hazardous substance, SOLID, N.O.S.
(Aluminium Powder and Petroleum Mixture)
Packing group: III
Marine Pollutant Applicable

15. Regulatory information

Ensure this material is on compliance with federal requirements and ensure it is conformity to local regulations.

16. Other information

References
1) WHO/IPCS: 「Environment protection criteria (EHC)」(1996)
2) Naomasa Kobayashi (1993), Scientist Press Co., ltd., Biological assay of water pollution on aquatic invertebrates, augmented edition.

Reference documents
Guidance for safe handling of aluminum paste 2004, 2nd revision, Japan Aluminum Association, Aluminum paste committee
Chemical Risk Information Platform, National Institute of Technology and Evaluation (NITE)

Material Safety Data Sheet is to provide reference information to assure the sage handling of the product.
The descriptions herein are based on the currently available sources, information and data but no guarantee is given for its contents, physico-chemical properties, risk or hazard. The precautions herein are for normal handling. If you use this product under the special conditions, take safety measures appropriate for the special use and usage.