Safety Data Sheet

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1. IDENTIFICATION

Product name：	Aluminium powder BL20-X
Company name：	TOYO ALUMINIUM K.K.
Address：	6-8, Kyutaromachi 3-chome, Chuo-ku, OSAKA, 541-0056, JAPAN
Section：	Powder & Paste Team, Quality Assurance Unit
Telephone：	+81-745-69-3489
Emergency telephone：	+81-745-69-3091
Recommended uses：	Aluminium pigment for paint

2. HAZARD IDENTIFICATION

[Hazard Classification]

Physical Hazards	Not applicable	
Health Hazards	Acute toxicity (oral)	Category5
	Specific target organ toxicity - single exposure	Category1 (respiratory organs)
	Specific target organ toxicity - repeated exposure	Category1 (respiratory organs, eye)
Environmental Hazards	Hazardous to the aquatic environment - chronic	Category4
Other Hazards	Not applicable	

Hazards that aren't written as the above are "Can't classify" or "Not Classified."

[GHS Label elements]

Pictogram

Signal word　Danger

H303 May be harmful if swallowed
H370 Causes damage to organs (respiratory organs)
H372 Causes damage to organs through prolonged or repeated exposure (respiratory organs, eye)
H413 May cause long lasting harmful effects to aquatic life

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P370+P378 In case of fire: Use metal fire powder for extinction.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/container in accordance with applicable regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Mixture

Chemical Name	Composition (%)	ENCS (Japan)	CAS
Aluminium flake	61 ～ 65	-	7429-90-5
Silicon dioxide	25 ～ 29	1-548	7631-86-9
Silver	7 ～ 11	-	7440-22-4
Tin oxide	≦ 2	1-551	18282-10-5

4. FIRST-AID MEASURES

IF INHALATION: Move 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 EYE: Immediately rinse with plenty of clean running water for 15 minutes or more and get medical attention/advice. Not rub victim's eyes. In the case victim wears contact lenses, remove them if possible.

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.

5. FIRE-FIGHTING MEASURES

Extinguishing media: Dry sand, glass fiber clothing, mica powder

Unsuitable extinguishing media: Water, extinguishing media containing water, foam extinguishing media, halogen extinguishing media, powder extinguisher by gas spray

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: Stirring aluminium powder or dust generation in fire emergency may cause dust explosion. If aluminium powder on the floor or in a container is burning, put mica powder or dry sand around the origin of fire without generating dust to form a circle for isolation and try smothering extinguishment by covering it by dry sand, glass cloth. Treat or transport burned aluminum powder after confirming the inside temperature did not rise after one day.

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/dust. If in doors, adequately ventilate until processing is complete.

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

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

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]

Engineering measures: Install equipment described in "8. EXPOSURE CONTROLS/PERSONAL PROTECTION" for local exhaust/total ventilation.

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.

[Storage]

Storage conditions: In the store room, install the day lighting, lighting, and ventilating equipment needed for storing or handling the product.
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.
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
Aluminium flake	-	Inhalation dust 0.5mg/m3 Total dust 2mg/m3	TWA:1mg/m3(R) STEL: -
Silicon dioxide	-	10ppm	TWA:10ppm STEL: -
Silver	-	0.01ppm(Ag)	TWA:0.1ppm STEL: -
Tin oxide	-	-	TWA:2ppm(Sn) 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: Use dust respirator.

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

Physical state:	Solid (powder)
Colour:	Metallic blue
Odour:	Odorless
Initial boiling point and boiling range:	If data is available, it is described below.
Flammability:	Not applicable
Explosion limit:	If data is available, it is described below.
Flash point:	If data is available, it is described below.
Auto-ignition temperature:	If data is available, it is described below.
Decomposition temperature:	N.A.
pH:	N.A.
Kinematic viscosity:	N.A.
Vapor pressure:	If data is available, it is described below.
Relative density(g/cm3, calculted):	2.6
Relative vapour density:	N.A.
Particle characteristics(D50)(μm):	1-100

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:	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 (oral)	2000mg/kg<ATEmix≦5000mg/kg and classified as Category 5.
Acute toxicity (dermal)	Not applicable to category
Acute toxicity (inhalation)	Not applicable to category
Skin corrosion or irritation	Not applicable to category
Serious eye damage or eye irritation	Not applicable to category
Respiratory sensitization	Not applicable to category
Skin sensitization	Not applicable to category
Germ cell mutagenicity	Not applicable to category
Carcinogenicity	Not applicable to category
Reproductive toxicity	Not applicable to category
Specific target organ toxicity - repeated exposure	Category 1 is more than 1% and classified as Category 1. (respiratory organs,eye)
Specific target organ toxicity - single exposure	Category 1 is more than 1% and classified as Category 1. (respiratory organs)
Aspiration hazard	Not applicable to category

12. ECOLOGICAL INFORMATION

Hazardous to the aquatic environment - acute	Not applicable
Hazardous to the aquatic environment - chronic	Category 1+2+3+4 is more than 25% and classified as Category 4.
Hazardous to the Ozone Layer	Not applicable
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 the product 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： Not applicable UN number： - Packing group - Proper shipping name： Not applicable
Marine Pollutant:	Not applicable

15. REGULATORY INFORMATION

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

16. OTHER INFORMATION

References：

GHS of Classification and Labelling of Chemicals
Recommendations on the TRANSPORT OF DANGEROUS GOODS
Chemical Risk Information Platform, National Institute of Technology and Evaluation (NITE)

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.