



## SAFETY DATA SHEET

### 1. Chemical Product and Company Identification

Product Name : **No36**  
General Use : For silver brazing operation  
SDS № : **201-28**  
Manufacturer : Mizuno Handy Harman, Ltd.  
Sales Dept. : 2-11-12, Kitaueno, Taitoh-Ku, Tokyo, Japan  
(Phone/Fax №: +81-3-3844-6166 / +81-3-3845-5702)  
Technical Dept. : 13-38 Noborito-Cho, Koshigaya-shi, Saitama, Japan  
(Phone/Fax №: +81-489-86-9151 / +81-489-86-9153)  
Emergency phone number : +81-489-86-9151

### 2. Hazards Identification

#### Classification(s)

Acute Toxicity, Inhalation: Hazard Category 3  
Carcinogenicity: Hazard Category 1  
Reproductive Toxicity: Hazard Category 2  
Germ Cell Mutagenicity: Hazard Category 2

Label Symbol(s): Skull & Crossbones, Health Hazard

Label Signal Word(s): Danger

#### Label Hazard Statement(s):

Toxic if inhaled.  
May cause cancer.  
Suspected of damaging fertility or the unborn child.  
Suspected of causing genetic defects.



#### Label Precautionary Statement(s):

Do not handle it until all safety precautions have been read and understood.  
Obtain special instructions before use.  
Avoid breathing dust or fumes.  
Use only outdoors or in a well-ventilated area. Store locked up.

Wear protective gloves and eye/face protection.

If skin irritation or rash occurs, get medical advice or attention.

If exposed or concerned, get medical advice/ attention.

The acute toxicities of 10-90% of the product's ingredients are unknown.

Warning: These products contain chemicals known to the State of California to cause cancer.

### 3. Composition, Information on Ingredients

\* Chemical Name and synonyms: Ag, Cu, Zn, Cd, Brazing Filler Metal

\* Chemical Family: Brazing Filler Metal

**Table 1: Components**

| Ingredient Name (Chemical Formula) | CAS # (*1) | WT % |
|------------------------------------|------------|------|
| Silver (Ag)                        | 7440-22-4  | 35   |
| Copper (Cu)                        | 7440-50-8  | 39   |
| Zinc (Zn)                          | 7440-66-6  | 23   |
| Cadmium (Cd)                       | 7440-43-9  | 3    |

\* Chemical Formula: Metal Alloy

\* Gazette Reference №: Please refer to Article 16.

**Table 2: Exposure Guidelines**

| Substances (Chemical Formula) | CAS #     | ACGIH (*2), TLV-TWA (*3)  |
|-------------------------------|-----------|---------------------------|
| Silver Fume (Ag)              | 7440-22-4 | Please refer to Article 8 |
| Copper Fume (Cu)              | 7440-50-8 | Ditto                     |
| Zinc Oxide Fume (Zn)          | 1314-13-2 | Ditto                     |
| Cadmium (Cd)                  | 7440-43-9 | Ditto                     |

<\*1> <\*2> <\*3>: Please refer to Article 16 (Other Information)

### 4. First Aid Measures

\* Eye contact: Wash immediately with plenty of water.

\* Skin contact: Wash with plenty of soap.

\* Inhalation: Remove the individual from the area to fresh air, blow the nose and gargle the throat.

\* Ingestion: Clean the stomach with water.

\* In any case, seek medical assistance immediately

### 5. Fire Fighting

Non-flammable

## 6. Accidental Release Measures

\* Personal precautions, protective equipment and emergency procedures

Avoid contact with skin, eyes, and mucous membranes.

\* Environmental precautions

Prevent spills from entering sewers or contaminating soil.

\* Methods and materials for containment and methods and materials for cleaning up

If a finely-divided form of the product is spilt, clean up spillage to minimize dispersion of dust. Either wet sweeping or vacuuming using HEPA filtration is recommended.

## 7. Handling and Storage

Handling: Humidity is not preferable as it will cause oxides on its surface.

Storage: Keep in-store and avoid fire, water, and acids.

## 8. Exposure Controls / Personal Protections

\* Control Value: Not established

\* Exposure Guidelines

|                          | Silver                                 | Copper   | Zinc  | Cadmium                         |
|--------------------------|--|--|---|---------------------------------|
| JCGIH <*4> in 2002       | 0.01 mg/m <sup>3</sup>                 | Not available  | Not available   | 0.05mg/m <sup>3</sup>           |
| ACGIH TLV-TWA            | 0.1 mg/m <sup>3</sup><br>(Dust & Fume) | 1 mg/m <sup>3</sup><br>(Dust & Fume)<br>0.2 mg/m <sup>3</sup> (Fume) | 5 mg/m <sup>3</sup> (Fume)<br>10 mg/m <sup>3</sup> (Dust)       | 0.01mg/m <sup>3</sup><br>(Fume) |
| TLV-STEL <*5>            | Not available                          | 0.2 mg/m <sup>3</sup> (Fume)   | 10 mg/m <sup>3</sup> (Fume)                                     | Not available                   |
| OSHA <*6><br>PEL<*7> TWA | 0.01 mg/m <sup>3</sup>                 | 0.1 mg/m <sup>3</sup> (Fume)   | 5 mg/m <sup>3</sup> (Fume)                                      | 5 µg/m <sup>3</sup>             |
| NIOSH <*8><br>PEL TWA    | Not available                          | Not available  | 5 mg/m <sup>3</sup><br>15 mg/m <sup>3</sup> /15M<br>(Max Limit) | 9mg/m <sup>3</sup>              |
| MSHA <*9><br>TWA         | 0.01 mg/m <sup>3</sup>                 | 0.1 mg/m <sup>3</sup>  | 5 mg/m <sup>3</sup>   | 9mg/m <sup>3</sup>              |

### Protection measures

\* Equipment: Use at the place where ventilators are equipped.

\* Protection: Use a protective respirator, glasses, gloves, and clothes, if preferable

## 9. Physical and Chemical Properties

\* Appearance: White yellow colour

- \* Flow point: 787 °C
- \* Melting point: 649°C
- \* Explosion: Non-explosive
- \* Solubility in water: Insoluble

## 10. Stability and Reactivity

- \* Soluble in sub-nitric acid and hot concentrated sulfuric acid
- \* Insoluble with alkali water

## 11. Toxicological Information

|                             | Silver  | Copper                                    | Zinc (Zinc Oxide)  | Cadmium                        |
|-----------------------------|---|---|--|--------------------------------|
| Mutagenicity                | Not available   | Not available                             | Rat: Positive<br>Inhalation:<br>Chromosome<br>Aberration                             | Not available                  |
| Reproductive Effects        | Not available   | Rat TDLo <*10><br>152 mg/Kg<br>(22 W Pre) | Not available  | Not available                  |
| Acute Toxicity (RTECS<*11>) | Rat LD<*12><br>>10g/Kg  | Human TDLo<br>0.12 mg/Kg                  | Rat LD <sub>50</sub>   | Rat LD <sub>50</sub>           |
| Oral Toxicity               | Guinea Pig LD:<br>>5 g/Kg   | Rat LD <sub>50</sub><br><*13>:3.5mg/Kg    | 2000 mg/Kg   | 1140mg/Kg                      |
| Inhalation Toxicity         | Not available   | Not available                             | Human TCLO<br><*14> 600 mg/m <sup>3</sup><br>Rat LC <sub>50</sub><br><*15> 2500mg/Kg | Not available                  |
| Chronic Toxicity            | Not available   | Not available                             | Not available  | Not available                  |
| Sub-Acute Toxicity          | Shivers and Fevers<br>(metallic fever) for a few<br>hours by<br>breathing metallic vapour | the same as silver                        | the same as silver, copper   | The same as silver.            |
| Sensitive Toxicity          | Not available   | Skin-sensitize.<br>Group2 (JCGIH)         | Not available  | Not available                  |
| Irritation Scores           | Not available   | Not available                             | Not available  | Not available                  |
| Carcinogenicity             | Not available   | EPA<*16>: D                               | EPA: D   | Germ cell mutagen<br>group: 3A |

## 12. Ecological Information

- \* Decomposition: Not available
- \* Accumulation: Not available
- \* Fish toxicity: Not available
- \* Other information: Not available

## 13. Disposal Considerations

Dispose of or ask the collecting dealer by related regulations and law

## 14. Transportation Information

- \* UN classification: 6.1
- \* UN Number: 2570
- \* Necessary measures are taken to avoid toppling and fall-down of cargoes

## 15. Regulatory Information

|              | Occupational Safety and Health Law | Disposal and Cleaning Control Law on Waste | Chemical Substances Control Law (Chemical Substance Article 2-1) | Regulation on PRTR <*>    | Firefighting Law             |
|--------------|------------------------------------|--|--|---------------------------|------------------------------|
| Silver (Ag)  | № 138/631                          | Metal Scrap (№ 6/13)                       | № 64/354   | Not applicable            | Not applicable               |
| Copper (Cu)  | № 378/631                          | Not applicable                             | Not applicable   | Drainage Standard: 3 mg/l | Not applicable               |
| Zinc (Zn)    | Not applicable                     | Not applicable                             | Not applicable   | Drainage Standard: 5 mg/l | Hazardous Substance Class: 3 |
| Cadmium (Cd) | Not applicable                     | Not applicable                             | Not applicable   | Not applicable            | Not applicable               |

## 16. Other Information

### Use of Fluxes

This product is often used together with fluxes.

Fluxes generate vapour when they are heated and irritate the eye, throat, and nose.

Avoid inhalation, exposure to this vapour (TLV: 2.5 mg/m<sup>3</sup>) as much as possible.

Use them where the ventilator is equipped.

Avoid direct contact of fluxes with skin, eye, and ingestion.

<References>

- <\*1> CAS #: Chemical substance register number of Chemical Abstracts Service
- <\*2> ACGIH: American Conference of Governmental Industrial Hygienists
- <\*3> TLV-TWA: Threshold Limit-Time Weighted Average
- <\*4> JCGIH: Japanese Conference of Governmental Industrial Hygienists
- <\*5> STEL: Short Term Exposure Limit
- <\*6> OSHA: Occupational Safety and Health Administration
- <\*7> PEL: Permissible Exposure Limit
- <\*8> NIOSH: National Institute for Occupational Safety and Health
- <\*9> MSHA: The Federal mine Safety and Health Act
- <\*10> TDLo: Toxic Dose Lowest
- <\*11> RTECS: Registry of Toxic Effects of Chemical Substances
- <\*12> LD: Lethal Dose
- <:\*13> LD<sub>50</sub>: 50% Lethal Dose
- <\*14> TCLo: Toxic Concentration Lowest
- <\*15> LC<sub>50</sub>: 50% Lethal Concentration
- <\*16> EPA: Environmental Protection Agency
- <\*17> PRTR: Pollutant Release and Transfer Register

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