

### SAFETY DATA SHEET

#### SECTION 1 - IDENTIFICATION

Print Date : 07/07/2015  
 Trade Names : Silver Brazing Paste with Flux  
 Synonyms : Silver Solder Paste with Flux  
 Product Codes Covered By This Material Safety Data Sheet:  
 This MSDS covers any product codes containing the information listed below:

723032  
 723035  
 723031  
 Solder

DAVIK - 65 - 1 - 2

ANY FLUX-BINDER	ANY ALLOY CODE			METAL %	SIZE
AQC	20-2	45-2	64	Any Letter	Any Number or Letter combination
OKC	30-3	45-3	65		
B510	33	50-5	67-1		
B511	34	55	67-2		
DAVIK	35-6	55-2	67-3		
HIAF	38	56	70		
HIAFT	40-2	56-1	72		
IAF	40-4	56-2	75		
IAFT	45-0	60	80		
VIK	45-1	60-1	80-LM		

**Product Description:** Silver-based brazing paste for use in joining metals. Contains a fluxing agent for use in open-air brazing.

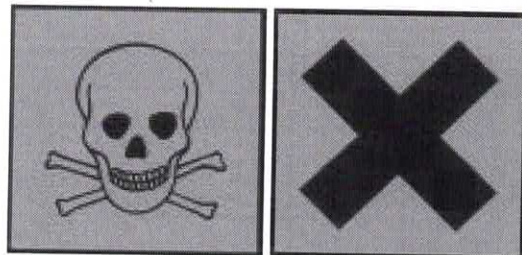
**Product Use :** Product is applied to metal parts which are heated to a temperature until the filler metal melts and flows and joins the components.

**Manufacturer :** Okai Corporation, 687 Lehigh Avenue, Union, NJ 07083

**Manufacture Phone :** 1-800-223-0025 **Emergency Contact:** Chemtrec 1-800-424-9300

#### SECTION 2 - HAZARD IDENTIFICATION

"T" - Toxic, Xn - Harmful  
 R20/22: Harmful by inhalation and if swallowed.  
 R36/38: Irritating to eyes and skin.  
 R60: May impair fertility.  
 R61: May cause harm to the unborn child.



**Emergency Overview:**  
**IMMEDIATE CONCERNS: Warning!** Product contains fluorides: In use above 500°C [930°F] in the presence of water vapor, hydrogen fluoride gas is evolved. Hydrogen fluoride gas can cause

## SAFETY DATA SHEET

irritation to the respiratory tract, and delayed burns to the eyes and skin. It can also cause fluid in the lungs [pulmonary edema], and death. Avoid contact with skin, eyes, and inhalation of vapors. Fumes from the soldering/brazing process are irritating to the eyes and respiratory system. Hot metal can cause eye and skin burns. Avoid breathing fumes from the soldering/brazing process. Use only with adequate ventilation.

### Potential Health Effects:

**Eyes:** Can cause severe irritation and abrasion. Contains metal powder and fluoride salts.

**Skin:** Skin contact may cause: severe irritation, burns. Prolonged skin contact may lead to symptoms similar to ingestion. May cause skin irritation. Hot molten metal may cause burns to the skin. Wear protective equipment when working with molten metal.

**Ingestion:** Fluorides can severely irritate and burn the mouth, throat and stomach. Toxic and possibly may be fatal if swallowed. Symptoms include: salivation, nausea, vomiting, diarrhea, abdominal pain, and coma. Ingestion may cause systemic poisoning. Prolonged ingestion of silver compounds may cause a permanent bluish discoloration of the skin, eyes, and mucous membranes.

**Inhalation:** Fluoride fume can cause respiratory irritation and pulmonary edema. Excessive vapor inhalation will lead to central nervous system depression. Prolonged inhalation of silver compounds may cause a permanent bluish discoloration of the skin, eyes, and mucous membranes. Inhalation of metal fumes may cause sneezing, nausea, weakness, fever or Metal Fume Fever.

### Signs & Symptoms of Overexposure:

#### **Acute Toxicity:**

Symptoms of over-exposure include nausea, vomiting and diarrhea. Acute overexposure to zinc oxide fume evolved from heating this product may cause metal fume fever, characterized by flu-like symptoms such as chills, fever, nausea and vomiting.

#### **Chronic Effects:**

Repeated exposure to fluoride containing dust can result in embrittlement and decalcification of bones and increased calcification of ligaments and vertebrae [fluorosis], stiffness and limitation of motion can result. Symptoms of fluorosis include brittle bones, weight loss, anemia, calcified ligaments, general ill health, joint stiffness, mottling of teeth, and bone damage [osteosclerosis]. Chronic exposure to silver may produce argyria, a permanent blue-gray discoloration of the skin, eyes, mucous membranes and respiratory tract. Skin contact with silver powder produces localized irritation and/or argyria. Prolonged or repeated exposure to copper may cause: skin and hair discoloration, skin irritation, dermatitis, runny nose, irritation of the mucous membranes. Repeated ingestion may cause: damage to liver, kidneys. Repeated inhalation may cause chronic respiratory disease.

**Carcinogenicity:** The materials used to formulate this product are not listed as a carcinogen by NTP, IARC, OSHA or the UK HSC.

**Reproductive Toxicity: Reproductive Effects:** Animal ingestion studies in several species, at high doses, indicate that borates cause reproductive and developmental effects. A human study of occupational exposure to borate dust showed no adverse effect on reproduction.

**Medical Conditions Aggravated:** Persons with pre-existing disorders of the liver, kidney, pulmonary function or having Wilson's disease may be more susceptible to the effects of this material.

**Routes Of Entry:** Potential routes of entry include: eye contact, skin contact, inhalation of metallic fume and decomposition products from heating this material during the soldering/brazing process.

**Target Organ Statement:** Affected target organs: eyes, skin, central nervous system,

## SAFETY DATA SHEET

respiratory system, reproductive system, bones (fluorosis), calcification of ligaments and vertebrae, teeth, liver, kidneys, mucous membranes, conjunctiva.

**Health Hazards:** Fluorides can cause eye, skin, and respiratory tract irritation.

Overexposure to fluoride dust over prolonged periods can result in fluoride deposition in bones and cartilage as evidenced by X-ray changes [fluorosis] which may be accompanied by stiffness of joints. In use above 500°C [930°F] in the presence of water vapor, hydrogen fluoride gas is evolved. Hydrogen fluoride gas can cause irritation to the respiratory tract, and delayed burns to the eyes and skin. It can also cause fluid in the lungs [pulmonary edema], and death.

### SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	EINECS	Classification	R and S Phrases	Symbol	Wt. %
Petrolatum	8009-03-8		--	R45	S24/25, S45, S53	0-20
Distillates (petroleum) hydrotreated, light	64742-47-8	265-149-8	Xn:R65	R38, R65, R51/53: S2, S23, S24, S62	+Xn	0-20
Boric Acid	10043-35-3	233-139-2	C; R34 Xn; R22 N; R50-53	R60, R61: S53, S45	C: Corrosive N: Dangerous for the environment	3-10
Potassium Bifluoride	7789-29-9	232-156-2	T; R25 C; R34	R25, R34: S1/2, S22, S26, S37, S45	+T: +C:	3-10
Potassium Fluoborate	14075-53-7	237-928-2	--	--	--	3-10
Silver	7440-22-4	231-131-3	--	--	--	8-30
Copper	7440-50-8	231-159-6	--	--	--	8-20
Zinc	7440-66-6	231-175-3	--	--	--	2-20
Tin	7440-31-5	231-141-8	--	--	--	0-2

### SECTION 4 - FIRST AID MEASURES

**Eyes:** Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get medical attention if irritation persists.

**Skin:** Immediately remove contaminated clothing. Do not attempt to remove any material bonded to the skin. Flush area of skin contact immediately with large amounts of water for at least 15 minutes. If irritation persists after flushing, get medical attention promptly. Launder contaminated clothing before reuse.

**Ingestion:** If swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Inhalation:** Remove victim to fresh air. If not breathing, trained personnel may give artificial respiration. If breathing is difficult, give oxygen by trained personnel. Seek medical attention.

**Notes To Physician:** Fluorides can reduce serum calcium levels resulting in potentially fatal hypocalcemia. Potassium can reduce blood pressure and cause coma. Boric Acid:

## SAFETY DATA SHEET

Observation only is required for adult ingestion in the range of 4-8 grams of this material. For ingestion of larger amounts, maintain adequate kidney function and force fluids. Gastric lavage is recommended for symptomatic patients only. Hemodialysis should be reserved for massive acute ingestion or patients with renal failure. Boron analyses of urine or blood are useful only for documenting exposure and should not be used to evaluate severity of poisoning or to guide treatment.

### SECTION 5 - FIREFIGHTING MEASURES

**Flammable Class:** Non-flammable solid

**Extinguishing Media:** For fires involving this product, use dry chemical, carbon dioxide, foam, water spray. Do not use water if metal is molten.

**Explosion Hazards:** Emits toxic and corrosive fumes under fire conditions.

**Fire Fighting Procedures:** Move container from fire area if it can be done without risk. Avoid inhalation of vapors or mists.

**Fire Fighting Equipment:** Exposure to decomposition products may be a hazard to health. Do not breathe smoke, gases or vapors generated. Wear goggles if eye protection is not provided. Wash away any material that comes into contact with the body, clothing or equipment. When fighting fires involving this product, wear full protective gear. For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.

**Hazardous Decomposition Products:** Decomposition products may include: carbon monoxide, carbon dioxide, smoke. When heated to decomposition temperatures [ $>225^{\circ}\text{C}$  /  $437^{\circ}\text{F}$ ], highly corrosive and toxic hydrofluoric acid fumes may be generated. Metallic decomposition products may include: metal oxide fumes, copper fume, zinc oxide fumes.

### SECTION 6 - ACCIDENTAL RELEASE MEASURES

**General Procedures:** Waste disposal method: Scoop up excess material and wash affected areas with soap and water. Mineral spirits or a similar solvent may be used for persistent stains. Avoid contact with skin and eyes.

**Special Protective Equipment:** Avoid inhaling vapor and/or mists. Do not get spilled material on skin, clothing, or in eyes. Wear full protective clothing. See Section 8. Remove all contaminated clothing.

### SECTION 7 - HANDLING AND STORAGE

**Handling:** Keep away from sources of ignition.

**Storage:** Keep lid tightly closed except when removing product and store at ambient temperatures of  $5-25^{\circ}\text{C}$  [ $41-77^{\circ}\text{F}$ ] [to maximise shelf life of product].

### SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical Name	CAS Number	EINECS Number	OSHA PEL	ACGIH TLV
Petrolatum	8009-03-8	232-315-6	None Found	None Found
Distillates (petroleum) hydrotreated, light	64742-47-8	265-149-8	None Found	1200 mg/m <sup>3</sup>
Boric Acid	10043-35-3	233-139-2	None Found	2.00 mg/m <sup>3</sup>

### SAFETY DATA SHEET

Potassium Bifluoride	7789-29-9	232-156-2	2.50 mg/m3	2.50 mg/m3
Potassium Fluoborate	14075-53-7	237-928-2	2.50 mg/m3	2.50 mg/m3
Silver	7440-22-4	231-131-3	0.10 mg/m3	0.10 mg/m3
Copper	7440-50-8	231-159-6	1.00 mg/m3	1.00 mg/m3
Zinc	7440-66-6	231-175-3	10.00 mg/m3	10.00 mg/m3
Tin	7440-31-5	231-141-8	2.00 mg/m3	2.00 mg/m3

**Engineering Controls:** The use of local ventilation is required to maintain the concentration of fumes evolved from the soldering/brazing process to well below the occupational exposure limits, within the operator's breathing zone and the general vicinity. Use of process enclosures, exhaust systems, and other engineering/administrative controls should be designed in accordance with local conditions. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices* [most recent edition].

**Eyes and Face:** Wear safety glasses with side shields as a minimum level of protection. Consult ANSI Z87.1 for more information.

**Skin:** Wear chemical resistant gloves. When material is heated, wear thermal-insulated gloves to protect against burns.

**Respiratory:** When exposure limits (listed above) are exceeded or ventilation is inadequate, wear a NIOSH or European Standard approved respirator, in accordance with OSHA respirator regulations [29 CFR 1910.134] or European Standards [EN149]. Consult ANSI Z88.2 *American National Standard for Respiratory Protection* for guidance on proper selection, use and care of respirators.

**Protective Clothing:** Avoid skin contact. Wear chemical resistant clothing (long-sleeved shirt buttoned at the wrist) as necessary to prevent contact. For soldering/brazing operations where hot metallic parts are handled and molten metal may be present, wear heat-resistant gloves and clothing to protect from burns.

**Work Hygienic Practices:** Minimize exposure in accordance with good hygiene practice. Good general hygienic practices include: Eating, drinking, and smoking should not be permitted in work areas. Wash thoroughly after handling, and before eating, drinking, using tobacco, applying cosmetics, or using the toilet. Keep area clean. Remove contaminated clothing promptly. Launder contaminated clothing before reuse. Avoid contact with eyes, skin, and clothing. Avoid breathing dust, vapor or mist.

**Other Precautions:** Educate and train employees in the safe use and handling of this product.

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

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Flashpoint and Method	:	Not Applicable
Odor	:	Slight petroleum odor
Appearance	:	Viscous paste
Colour	:	Paste may be gold, brown or grey.
Vapor Pressure	:	0.093 mm Hg at 68°F/20°C
Vapor Density	:	>1 [air=1]
Boiling Point	:	530-623°F [277-328°C]

### SAFETY DATA SHEET

**Solubility In Water** : Negligible  
**Evaporation Rate** : No data available  
**Specific Gravity** : > 2.000 (water=1)  
**Melting Point** : Not applicable in paste form. All filler metals covered by this MSDS have a melting point greater than 1200°F.

#### SECTION 10 - STABILITY AND REACTIVITY

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**Stability:** Stable under normal conditions of use.

**Polymerization:** Will not occur.

**Conditions To Avoid:** Avoid contact with incompatible materials. Avoid extreme heat. Avoid prolonged exposure to air and moisture.

**Incompatible Materials:** Materials to avoid: strong oxidizers, acids [produces HF gas], reaction with strong reducing agents [metal hydrides or alkali metals] will generate hydrogen gas, halogens, strong alkalies, chlorine, peroxides, strong acids, strong bases, acetylene, ammonia, halogenated hydrocarbons, magnesium, bromates, chlorates, iodates.

#### SECTION 11 - TOXICOLOGICAL INFORMATION

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**Eye Effects:** Can cause severe irritation and abrasion. [Contains metal powder and fluoride salts.]

**Skin Effects:** Short and moderate term skin contact is usually not harmful. However, in sensitized individuals, or in contact with damaged skin, it may cause severe irritation.

**Possible Effects of Chronic Exposure:** The fluoride ion can reduce serum calcium levels, possibly causing fatal decalcification of the bones.

**Metal fume fever:** is an acute self-limited illness induced most commonly by inhalation of zinc oxide fumes. The affected individual characteristically experiences the rapid onset of intense shaking chills, fever, and body aches a few hours after exposure, and symptoms dissipate spontaneously. While the occurrence of metal fume fever appears to be widespread and the current TLV/PEL of 5 mg/m<sup>3</sup> and STEL of 10 mg/m<sup>3</sup> may not be fully protective, no chronic health sequelae have been documented to date. Nonetheless, as any worker who has experienced a full-blown case will likely testify, metal fume fever remains one of the more noxious short-term illnesses contracted in the workplace, and its prevention deserves serious attention.

**Carcinogenicity:** This product was **not** formulated with any ingredients that are classified as carcinogenic by IARC, NTP, ACGIH, OSHA or the UK HSC.

This product, as supplied, has not been tested. Information is provided on the components of this product.

#### Component Information

##### **Petrolatum**

Routes of Entry: Eye contact. Inhalation. Ingestion.

Toxicity to Animals: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans: Slightly hazardous in case of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

## SAFETY DATA SHEET

### **Distillates (petroleum) Hydrotreated, light**

Routes of Exposure: Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Acute Oral Toxicity: Low toxicity: LD50 > 5000 mg/kg Rat

Acute Dermal Toxicity: Low toxicity: LD50 >2000 mg/kg, Rabbit

Acute Inhalation Toxicity: Low toxicity: LC50 >5 mg/l/4 h, Rat

Skin corrosion/irritation: Irritating to skin.

Serious eye damage/irritation: Expected to be slightly irritating.

Respiratory Irritation: Vapours/mists may cause irritation to respiratory system.

Respiratory or skin sensitisation: Not a skin sensitiser.

Germ cell mutagenicity: Not considered a mutagenic hazard.

Carcinogenicity: Not classified as a carcinogen.

Reproductive/Developmental Toxicity: Not expected to impair fertility. Not classified as a developmental toxicant.

### **Boric Acid**

Routes of Entry: Absorbed through skin. Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 2660 mg/kg [Rat].

Chronic Effects on Humans: MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast.

DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE]. May cause damage to the following organs: kidneys, cardiovascular system, central nervous system.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in skin contact (permeator).

Special Remarks on Toxicity to Animals : Not available.

Special Remarks on Chronic Effects on Humans: May cause adverse reproductive effects (fertility, fetotoxicity) based on animal studies. May affect genetic material. May cause teratogenic effects based on animal studies.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: May cause skin irritation. May be absorbed through damaged or abraded skin in harmful amounts. If absorbed through skin it may affect behavior, sense organs, metabolism, the gastrointestinal tract, and the respiratory tract (respiratory depression) Eyes: Dust causes eye irritation. Inhalation: Dust causes respiratory tract irritation. Ingestion: Causes digestive (gastrointestinal) tract irritation with nausea, vomiting and diarrhea. May also affect behavior, brain, Central Nervous System (depression, headache, dizziness, drowsiness, collapse, unconsciousness, coma), Peripheral Nervous System, cardiovascular system, blood, liver, urinary system (kidney, ureter, bladder) and endocrine system. Chronic Potential Health Effects: Boric acid can accumulate in the body (brain, bone) with repeated exposure. Prolonged or repeated skin contact may cause dermatitis. May cause borism characterized by dry skin, skin eruptions, and gastric disturbances.

### **Potassium Bifluoride**

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: LD50: Not available. LC50: Not available.

Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.

Other Toxic Effects on Humans: Extremely hazardous in case of skin contact (corrosive, irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator).

## SAFETY DATA SHEET

Special Remarks on Toxicity to Animals: Not available.  
Special Remarks on Chronic Effects on Humans: Not available.  
Special Remarks on other Toxic Effects on Humans: Not available.

### Potassium Fluoborate

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.  
Toxicity to Animals: LD50: Not available. LC50: Not available.  
Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.  
Other Toxic Effects on Humans: Extremely hazardous in case of skin contact (corrosive, irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator).  
Special Remarks on Toxicity to Animals: Not available.  
Special Remarks on Chronic Effects on Humans: Passes through the placental barrier.  
Special Remarks on other Toxic Effects on Humans: Not available.

### Silver

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.  
Toxicity to Animals: Acute oral toxicity (LD50): 100 mg/kg [Mouse].  
Chronic Effects on Humans: Not available.  
Other Toxic Effects on Humans: Very hazardous in case of ingestion, of inhalation.  
Special Remarks on Toxicity to Animals: Not available.  
Special Remarks on Chronic Effects on Humans: Not available.  
Special Remarks on other Toxic Effects on Humans: Not available.

### Copper

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.  
Toxicity to Animals: LD50: Not available. LC50: Not available.  
Chronic Effects on Humans: Not available.  
Other Toxic Effects on Humans: Very hazardous in case of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant).  
Special Remarks on Toxicity to Animals: Not available.  
Special Remarks on Chronic Effects on Humans: Not available.  
Special Remarks on other Toxic Effects on Humans: Not available.

### Zinc

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.  
Toxicity to Animals: LD50: Not available. LC50: Not available.  
Chronic Effects on Humans: Not available.  
Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.  
Special Remarks on Toxicity to Animals: Not available.  
Special Remarks on Chronic Effects on Humans:  
Acute Potential Health Effects: Skin: May cause skin irritation. Dermal exposure to zinc may produce leg pains, fatigue, anorexia and weight loss. Eyes: May cause eye irritation. Ingestion: May be harmful if swallowed. May cause digestive tract irritation with tightness in throat, nausea, vomiting, diarrhea, loss of appetite, malaise, abdominal pain. fever, and chills. May affect behavior/central nervous system and autonomic nervous system with ataxia, lethargy, staggering gait, mild derangement in cerebellar function, lightheadedness, dizziness, irritability, muscular stiffness, and pain. May also affect blood. Inhalation: Inhalation of zinc dust or fumes may cause respiratory tract and mucous membrane irritation with cough and chest

## SAFETY DATA SHEET

pain. It can also cause "metal fume fever", a flu-like condition characterized appearance of chills, headache fever, malaise, fatigue, sweating, extreme thirst, aches in the legs and chest, and difficulty in breathing. A sweet taste may also be present in metal fume fever, as well as a dry throat, aches, nausea, and vomiting, and pale grey cyanosis. The toxicological properties of this substance have not been fully investigated.

### **Tin**

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.  
Toxicity to Animals: LD50: Not available. LC50: Not available.  
Chronic Effects on Humans: Not available.  
Other Toxic Effects on Humans: Slightly hazardous in case of ingestion, of inhalation.  
Special Remarks on Toxicity to Animals: Not available.  
Special Remarks on Chronic Effects on Humans: Not available.  
Special Remarks on other Toxic Effects on Humans: Not available.

## SECTION 12 - ECOLOGICAL INFORMATION

This product, as supplied, has not been tested for ecological impact. Information is provided below for components of this product.

### **Distillates (petroleum) Hydrotreated, light**

#### Toxicity

##### Acute Toxicity:

Toxic: LL/EL/IL50 > 1 <= 10 mg/l LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract.

Fish: Toxic: LL/EL/IL50 > 1 <= 10 mg/l

Aquatic crustacea: Toxic: LL/EL/IL50 > 1 <= 10 mg/l

Algae/aquatic plants: Toxic: LL/EL/IL50 > 1 <= 10 mg/l

Microorganisms: Practically non toxic: LL/EL/IL50 > 100 mg/l

##### Chronic Toxicity

Fish: NOEC/NOEL expected to be > 0.01- <= 0.1 mg/l

Aquatic crustacea: NOEC/NOEL expected to be > 0.1-<= 1.0 mg/l

Persistence and degradability: Expected to be inherently biodegradable. The volatile constituents will oxidize rapidly by photochemical reactions in air.

Bioaccumulative Potential: Contains constituents with the potential to bioaccumulate.

Mobility: Floats on water. Contains volatile constituents. Evaporates within a day from water or soil surfaces. Large volumes may penetrate soil and could contaminate groundwater.

Result of PBT and vPvB Assessment: The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and is not considered to be PBT or vPvB.

Other Adverse Effects: Films formed on water may affect oxygen transfer and damage organisms

### **Boric Acid**

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product and its products of degradation

### SAFETY DATA SHEET

are not toxic. Special Remarks on the Products of Biodegradation: Not available.

#### **Potassium Bifluoride, Potassium Fluoborate (data valid for both ingredients)**

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

#### **Petrolatum, Silver, Copper, Zinc, Tin (data valid for all four ingredients)**

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original.

Special Remarks on the Products of Biodegradation: Not available.

### SECTION 13 - DISPOSAL CONSIDERATIONS

**Disposal Method:** Dispose of in accordance with EC, national and local regulations, or sell to a refiner.

**Product Disposal:** Disposal of waste material from the use of this product may be subject to federal, state and local regulations. Waste characterizations and compliance with applicable laws are the sole responsibility of the waste generator. Reclaimed scrap metal has monetary value. Contact a commercial reclaimer for information on recycling scrap metals. All recovered material should be packaged, labeled, transported and disposed or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices.

**Empty Container:** Do not reuse empty containers. Dispose of empty container in accordance with EC, national and local regulations. Empty containers may be refined or recycled.

### SECTION 14 - TRANSPORT INFORMATION

UN Number : None

Transport by road/rail

Transport hazard class/packing group: None

Classification code : None

LQ(ADR 2011) : None

LQ(ADR 2009) : None

Tunnel restriction code : None

Transport by sea (IMDG-code)

IMDG-code : None (transport hazard class/packing group)

Marine Pollutant : None

Transport by air (IATA)

IATA : None

Additional information Non-dangerous material according to Transport Regulations

### SAFETY DATA SHEET

#### SECTION 15 - REGULATORY INFORMATION

##### General Compliance

##### **Compliance with the Dodd-Frank Act - Conflict Minerals Rule**

Okai Corporation has carried out due diligence to ensure that our suppliers of Gold and Tin, which may be added to Okai product(s) that you purchase, and may be necessary to the functionality of those product(s), are sourced from 100% recycled sources that have provided documented compliance to us.

##### **European Chemicals Agency (ECHA) REACH Compliance**

This product contains Boric Acid which is listed on the SVHC List under the requirements of REACH. This material is NOT REACH compliant. However, when using this product, Boric Acid, as a part of the flux, will be used up and removed from the final assembly in the washing process. Completed parts that use this product should not contain any Boric Acid. Determination of compliance with REACH is the user's responsibility.

**California Proposition 65 (List Published 01/31/2004):** No ingredients listed.

**Restriction of Hazardous Substances Directive 2002/95/EC, RoHS:** This product complies.

##### **EEC CLASSIFICATION [overall preparation]**

"T" - Toxic

R20/22: Harmful by inhalation and if swallowed.

R36/38: Irritating to eyes and skin.

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

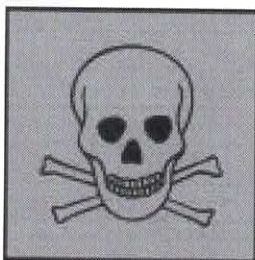
S36/37: Wear suitable protective clothing and gloves.

S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label).

S51: Use only in well-ventilated areas.

S53: Avoid exposure - obtain special instructions before use.

Label Requirements:



##### **Hazardous Materials Identification System**

HEALTH	2
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	H

*This product, as supplied, has not been evaluated for inclusion on regulatory lists. Reporting requirements are provided for the components of this material for reference*

## SAFETY DATA SHEET

only. It is the user's responsibility to verify actual reporting requirements in accordance with local regulations.

### Petrolatum

**TSCA 8(b) inventory:** Petrolatum, white

**EINECS:** This product is on the European Inventory of Existing Commercial Chemical Substances.

**WHMIS (Canada):** Not controlled under WHMIS (Canada).

**DSCL (EEC):** This product is not classified according to the EU regulations. S24/25- Avoid contact with skin and eyes. S28- After contact with skin, wash immediately with plenty of water S37- Wear suitable gloves. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

### Distillates (petroleum) hydrotreated, light

**OSHA Hazards:** Combustible liquid

**TSCA 8(b) inventory:** Distillates, petroleum, hydrotreated light CAS# 64742-47-8

**California Proposition 65:** Not listed

**SARA 302 Status:** No

**SARA 311/312 Classification:** "Fire hazard"

**SARA 313 Chemical:** This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**US. EPA CERCLA Hazardous Substances (40 CFR 302):** None

**WHMIS Classification:** Class B, Division 3: Combustible liquid.

**European Union:** Xn:Harmful, R65 Harmful: may cause lung damage if swallowed., R66 Repeated exposure may cause skin dryness or cracking.

**Australian Inventory of Chemical Substances (AICS) Listing:** Listed

**Japanese Minister of International Trade and Industry (MITI) Inventory Listing:** Listed

**Canadian Domestic Substance List (DSL) Inventory Listing:** Listed

**Canadian Non-Domestic Substance Listing (NDSL):** Not listed

**European Inventory of Existing Commercial Chemical Substances (EINECS) Listing:** Listed

**Philippines Inventory List (PICCS):** Listed

**Korean Inventory List:** Listed

**China Inventory List:** Listed

### Boric Acid

**TSCA 8(b) inventory:** Boric acid

**OSHA:** Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**WHMIS (Canada):** CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

**DSCL (EEC):** R36/38- Irritating to eyes and skin. R40- Possible risks of irreversible effects. R62- Possible risk of impaired fertility. S24/25-Avoid contact with skin and eyes.

**European Community:** SVHC (SUBSTANCES OF VERY HIGH CONCERN): Boric Acid

### Potassium Bifluoride

**TSCA 8(b) inventory:** Potassium bifluoride

**OSHA:** Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**WHMIS (Canada):** CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS E: Corrosive solid.

**DSCL (EEC):** R35- Causes severe burns.

### Potassium Fluoborate:

### SAFETY DATA SHEET

**TSCA 8(b) inventory:** Potassium fluoborate

**OSHA:** Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**WHMIS (Canada):** CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

**DSCL (EEC):** R38- Irritating to skin. R41- Risk of serious damage to eyes.

#### Silver

**Rhode Island RTK hazardous substances:** Silver

**Pennsylvania RTK:** Silver

**Minnesota:** Silver

**Massachusetts RTK:** Silver New

**Jersey:** Silver

**TSCA 8(b) inventory:** Silver

**TSCA 8(a) PAIR:** Silver

**TSCA 8(d) H and S data reporting:** Silver

**SARA 313 toxic chemical notification and release reporting:** Silver: 1%

**CERCLA: Hazardous substances.:** Silver: 1000 lbs. (453.6 kg)

**OSHA:** Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**EINECS:** This product is on the European Inventory of Existing Commercial Chemical Substances.

#### Copper

**Pennsylvania RTK:** Copper

**Massachusetts RTK:** Copper

**TSCA 8(b) inventory:** Copper

**CERCLA: Hazardous substances.:** Copper

**OSHA:** Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**WHMIS (Canada):** CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

**DSCL (EEC):** R36- Irritating to eyes.

#### Zinc

**New York release reporting list:** Zinc Metal

**Rhode Island RTK hazardous substances:** Zinc Metal

**Pennsylvania RTK:** Zinc Metal

**Florida:** Zinc Metal

**Michigan critical material:** Zinc

**Metal Massachusetts RTK:** Zinc Metal

**New Jersey:** Zinc Metal

**California Director's List of Hazardous Substances:** Zinc Metal

**TSCA 8(b) inventory:** Zinc Metal

**TSCA 12(b) one time export:** Zinc Metal

**SARA 313 toxic chemical notification and release reporting:** Zinc Metal

**CERCLA: Hazardous substances.:** Zinc Metal: 1000 lbs. (453.6 kg)

**EINECS:** This product is on the European Inventory of Existing Commercial Chemical Substances.

**WHMIS (Canada):** Not Available

**DSCL (EEC):** R15- Contact with water liberates extremely flammable gases. R17- Spontaneously flammable in air. S7/8- Keep container tightly closed and dry. (not applicable to this material as supplied in paste form)

#### Tin

**Rhode Island RTK hazardous substances:** Tin

### SAFETY DATA SHEET

Pennsylvania RTK: Tin

Massachusetts RTK: Tin

New Jersey: Tin

California Director's List of Hazardous Substances: Tin

TSCA 8(b) inventory: Tin

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC): This product is not classified according to the EU regulations. Not applicable.

#### SECTION 16 - OTHER INFORMATION

##### Text of Risk Phrases in this MSDS:

- R25 : Toxic if swallowed  
R34 : Causes burns  
R38 : Irritating to skin  
R45 : May cause cancer  
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment  
R60 : May impair fertility  
R61 : May cause harm to the unborn child  
R65 : Harmful: may cause lung damage if swallowed

##### Text of Safety Phrases in this MSDS:

- S1/2 : Keep locked up and out of the reach of children  
S22 : Do not breathe dust  
S23 : Do not breathe gas/fumes/vapour/spray (*appropriate wording to be specified by the manufacturer*)  
S24 : Avoid contact with skin  
S26 : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice  
S37 : Wear suitable gloves  
S45 : In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)  
S53 : Avoid exposure - obtain special instructions before use  
S62 : If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label where possible

##### Revision Summary:

Original Document 07/07/2015

Last Review 07/07/2015

##### Manufacturer Disclaimer:

*This Material Safety Data Sheet is prepared in accordance with U.S. OSHA, Canadian WHMIS, and European Community Safety Data Sheet directives. This document is offered pursuant to OSHA's Hazard Communication Standard 29 CFR 1910.1200. The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared, and are offered in good faith. However, no warranty, guaranty or representation is expressed or implied as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable EC, national or state laws. Okai Corporation assumes no responsibility for injury to the end user caused by the material even if proper safety procedures are followed. The end user should determine the suitability of the information for their particular usage. The end user assumes the risk in the use of this material. The information in this document may be changed periodically.*