



This safety data sheet represents a family grouping of all metal mixes that are blended with the same flux known as WMA-SMQ 69HT. A table is provided that lists all metal groupings. To better serve all of our customers Indium Corporation has generated one SDS, for this product, to be used within the United States as well as internationally. Some of the regulatory information contained within may not be applicable to the customer's individual state or country. Unless otherwise stated the health and safety information provided within is applicable to all products.

SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier: INDALLOY WITH WMA-SMQ69HT FLUX VEHICLE

SDS Number: SDS-IN 255 **Revised Date:** 19 APRIL 2018

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product Use: Industrial Use - Water-soluble mildly activated solder paste consisting of a flux vehicle blended with 83-92 weight percent pre-alloyed metal powder. See alloy table for metal mixes.

1.3 Details of the supplier of the safety data sheet

MANUFACTURER/SUPPLIER/IMPORTER:

In America:

The Indium Corporation of America®.

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Technical & Safety Information: (315) 853-4900

Safety & SDS Information: nswarts@indium.com

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Information: (86) 512-6283-4900

In Asia:

The Indium Corporation of America

Asia-Pacific Operations-Singapore

29 Kian Teck Avenue

Singapore 628908

Information: +65 6268-8678

1.4 Emergency telephone number

FOR CHEMICAL EMERGENCY ONLY PHONE *:

CHEMTREC 24 hrs.

USA: 1 (800) 424-9300

Outside USA: +1 (703) 527-3887

*** Used only for spill/leak/fire/exposure/accident**

ALL OTHER INQUIRIES: TOLL FREE: +1-800-448-9240 Indium Corporation

SECTION 2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

Eye
 Inhalation
 Skin
 Ingestion
 NTP
 Carcinogen listed in IARC
 OSHA
 Not Listed

2.1 Classification: mixture

2.2 Label Elements

GHS
Lead free



Signal Word: Warning

Hazard statement(s)

H319 Causes serious eye irritation
H335 May cause respiratory irritation

Precautionary statement(s)

P233 Keep container tightly closed
 P261 Avoid breathing dust/fume/gas/mist/vapors/spray
 P270 Do not eat, drink or smoke when using this product
 P273 Avoid release to the environment
 P280 Wear protective gloves/protective clothing/eye protection/face protection
 P362 +P364 Take off contaminated clothing and wash before reuse
 P301 + P314 IF SWALLOWED: Get Medical advice/attention if you feel unwell
 P302 +P352 IF ON SKIN: Wash with plenty of soap and water
 P304 + 341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
 P305 + 351 IF IN EYES: Rinse continuously with water for several minutes (15 mins).
 P501 Dispose of in accordance with applicable local/state and federal laws. Recycle when possible.

Lead Containing:



Signal Word: Warning

Hazard statement(s)

H303 May be harmful if swallowed (lead)
 H319 Causes serious eye irritation
 H335 May cause respiratory irritation

H351	Suspected of causing cancer (lead)
H361	Suspected of damaging fertility or the unborn child (applicable to lead containing product)
H373	May cause damage to organs through prolonged or repeated exposure (applicable to lead containing product)
H410	Very toxic to aquatic life with long lasting effects (lead)
EUH201A	Warning! Contains lead (applicable only to the products listed that contain lead) Review listing.
<u>Precautionary statement(s)</u>	
P233	Keep container tightly closed
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P270	Do not eat, drink or smoke when using this product
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection
P362 + P364	Take off contaminated clothing and wash before reuse
P301 + P314	IF SWALLOWED: Get Medical advice/attention if you feel unwell
P302 + P352	IF ON SKIN: Wash with plenty of soap and water
P304 + 341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + 351	IF IN EYES: Rinse continuously with water for several minutes (15 mins).
P501	Dispose of in accordance with applicable local/state and federal laws. Recycle when possible.

Classification:

Serious eye irritant-Category 2B

Acute toxicity, oral- Category 5

Specific target organ toxicity- repeated exposure – Category 2

Carcinogenicity (Category 2) (lead)

Reproductive toxicity (Category 2) (lead)

Acute toxicity, inhalation- Category 4

Acute aquatic toxicity – Category 1 for lead containing products

Chronic aquatic toxicity – Category 1 for lead containing products

2.3 OTHER HAZARDS:**POTENTIAL HEALTH EFFECTS:**

Eye Contact: Contact with material at room temperature or fume from material at typical re-flow temperatures over 100°C can cause serious eye irritation.

Ingestion: This product contains metal alloy powder and organic chemicals. May be harmful if swallowed.

Inhalation: Vapors or fumes from this material at typical re-flow temperatures over 100°C may cause local irritation to the respiratory system.

Skin Contact: May cause skin irritation. **ANTIMONY** has been known to cause dermatitis.

Chronic:

SILVER: Chronic skin contact or ingestion of silver powder, salts or fume can result in a condition known as Argyria, a condition with bluish pigmentation of the skin and eyes.

TIN: Has been shown to increase incidence of sarcoma in animal tests.

COPPER: Overexposure to fumes of copper may cause metal fume fever (chills, muscle aches, nausea, fever; dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair.

INDIUM: May cause damage to respiratory system.

LEAD: Prolonged exposure to vapors or fumes at higher temperatures may cause respiratory irritation and systematic lead

poisoning. Symptoms of lead poisoning include headache, nausea, abdominal pain, muscle and joint pain and damage to the nervous system, blood system and kidneys.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.2 Mixture:

Components	% wt	CAS Registry #
TIN	*	7440-31-5 (US)
SILVER	*	7440-22-4 (US)
COPPER	*	7440-50-8 (US)
INDIUM	*	7440-74-8 (US)
ANTIMONY	*	7440-36-0 (US)
LEAD	*	7439-92-1 (US)
ALCOHOLS	4.0-8.5	68475-56-9
PROPRIETARY	4.0-8.5	-

N.E. = Not established *See Alloy Table

ALLOY TABLE

%metal mixed with flux

INDALLOY (metal mixture)	RoHS Compliance RoHS 2/3	%TIN Sn	%LEAD Pb	%GOLD Au	%COPPER Cu	%SILVER Ag	%INDIUM In	%ANTIMONY Sb
104 (Sn62) (62.5Sn/36.1Pb /1.4Ag)	No	51.9-57.5	29.2-33.2	-	-	1.2-1.8	-	-
106 (Sn63) (63Sn/36Pb)	No	52.3-58	30.7-34	-	-	-	-	-
118 (90Sn/10Pb)	No	74.7-82.8	8.3-9.2	-	-	-	-	-
121 (96.5Sn/3.5Ag)	Yes	80.1-88.8	-	-	-	2.9-3.2	-	-
127 60Pb/37Sn/3Ag	No	30.7-34.0	49.8-55.2	-	-	2.5-2.8	-	-
128 (100Sn)	Yes	83-92	-	-	-	-	-	-

INDALLOY (metal mixture)	RoHS Compliance RoHS 2/3	%TIN Sn	%LEAD Pb	%GOLD Au	%COPPER Cu	%SILVER Ag	%INDIUM In	%ANTIMONY Sb
130 (60Pb/40Sn)	No	33.2-36.8	49.8-55.2	-	-	-	-	-
131 (97Sn/3Sb)	Yes	80.5-89.2	-	-	-	-	-	2.5-2.8
132 (95Sn/5Ag)	Yes	78.9-87.4	-	-	-	4.2-4.6	-	-
133 (95Sn/5Sb)	Yes	78.9-87.4	-	-	-	-	-	4.2-4.6
143 (90Pb/10Sb)	Yes	-	74.7-82.8	-	-	-	-	8.3-9.2
145 (75Pb/25Sn)	No	20.8-23	62.3-69	-	-	-	-	-
151 (92.5Pb/5Sn/2.5Ag)	Yes	4.2-4.6	76.8-85.0	-	-	2.0-2.3	-	-
159 (90Pb/10Sn)	Yes	8.3-9.2	74.7-82.8	-	-	-	-	-
160 (97Sn/3Cu)	Yes	80.5-89.2	-	-	2.5-2.8	-	-	-
164 92.5Pb/5In/2.5Ag	Yes	-	76.8-85.1	-	-	2.1-2.3	4.2-4.6	-
165 (97.5Pb/1.5Ag/1Sn)	Yes	0.8-0.9	80.9-89.7	-	-	1.2-1.4	-	-
171 (95Pb/5Sn)	Yes	4.2-4.6	78.9-87.4	-	-	-	-	-
182 (80Au/20Sn)	Yes	16.6-18.4	-	66.4-73.6	-	-	-	-
228 88Pb/10Sn/2Ag	Yes	8.3-9.2	73.0-81.0	-	-	1.7-1.8	-	-
233 85Pb/10Sb/5Sn	No	4.2-4.6	70.6-78.2	-	-	-	-	8.3-9.2
241 (SAC387) (95.5Sn/3.8Ag/0.7Cu)	Yes	79.3-87.9	-	-	0.58-0.64	3.2-3.5	-	-
254 (86.9Sn/10In/3.1Ag)	Yes	72-80	-	-	-	2.57-2.85	8.3-9.3	-

INDALLOY (metal mixture)	RoHS Compliance RoHS 2/3	%TIN Sn	%LEAD Pb	%GOLD Au	%COPPER Cu	%SILVER Ag	%INDIUM In	%ANTIMONY Sb
NS (90Sn/10Sb)	Yes	74.7-82.8	-	-	-	-	-	8.3-9.2
NS (91.5Sn/8.5Sb)	Yes	75.9-84.2	-	-	-	-	-	7.1-7.8
NS (93.5 Pb/5Sn/1.5Ag)	Yes	4.2-4.6	77.6-86	-	-	1.2-1.4	-	-

RoHS Compliance =Restriction of Hazardous Substances. RoHS 3- Product does not contain any RoHS listed phthalates. Review for any applicable exemptions that may apply. NS= Non Standard Alloy

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures:

Eye Contact: Hold eyelids apart and flush eyes with plenty of tepid water for at least 15 minutes. Seek medical attention if irritation persists.

Ingestion: If patient is conscious, ONLY induce vomiting as directed by trained personnel. NEVER give anything by mouth to an unconscious person. Seek medical attention immediately.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or oxygen by trained personnel. Seek immediate medical attention.

Skin Contact: Remove contaminated clothing. Wash affected area with soap and water. Wash clothing before reuse. If irritation persists, obtain medical attention.

4.2 Most important symptoms and effect, both acute and delayed:

Skin contact may cause irritation. Long term contact may cause dermatitis. Exposure to metal fumes may cause irritation to the respiratory system. Long term exposure by inhalation to metal fumes may cause illness such as metal fume fever. If applicable, exposure to lead fume may cause harm. Sign of overexposure is anemia.

4.3 Indication of any immediate medical attention and special treatment needed:

No specific special treatment information is available on this mixture. Review data provided in this document to understand the hazards when working with the product. No other information is available at this time.

SECTION 5. FIRE FIGHTING MEASURES

5.1 Extinguishing Media: Use extinguishers appropriate for the surrounding fire conditions. Water, CO2, foam media.

5.2 Special hazards arising from the substance or mixture:

May produce toxic fumes of carbon monoxide if burning or metal oxide fumes.

5.3 Advice for Firefighters Fire fighters must wear approved self-contained breathing apparatus and full protective clothing.

5.4 Further information

Material product is not flammable. No other information is available

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Keep away from the spill. Remove sources of ignition. Keep exhaust ventilation system running. In the event of a fire evacuate area.

For emergency responders:

Wear safety glasses, gloves when cleaning up any spill. Other equipment may be necessary based on the immediate area and other chemicals unrelated to the product that may be in use. Adequate ventilation should be available. Keep unnecessary personnel away from area during clean up.

6.2 Environmental Precautions: Dispose contaminated cloth rags or paper towels following all applicable governmental regulations. Material may have reclaim value. Material is non-hazardous. It however does contain metals and organic chemicals which may not be suited for release to any body of water including drains.

6.3 Methods and material for containment and cleaning up:

Spill or leak procedures: Using a spatula, scoop up paste and place in a plastic or glass jar and tightly cap. Remove traces of paste residue using cloth rags or paper towels moistened with ethyl or isopropyl alcohol.

6.4 Reference to other sections: See Section 8 for exposure levels. Section 13 for disposal.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions For Safe Handling: Keep containers tightly closed when not in use. Use care to avoid spills. Use only with production equipment specifically designed for use with solder paste. Wear appropriate personal protective equipment when working or handling solder paste. Always thoroughly wash your hands after handling this product. DO NOT touch or rub eyes until hands are washed. Do not eat, drink or smoke when handling this product. Utilize exhaust ventilation when heating product. Emissions may contain metal fumes, rosin and organic compounds.

7.2 Conditions for Safe Storage, including any incompatibilities:

Storage Precautions: Store product in tightly capped original containers in a cool, dry area. Refer to product label and product data sheet for specific storage temperature requirements. Rotate stock to ensure use before expiration date.

7.3 Specific End Use(s): Soldering applications

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components	% wt	CAS Registry #	PEL mg/m ³	TLV-TWA mg/m ³	TLV-STEL mg/m ³
TIN	*	7440-31-5 (US)	2	2	-
		(EU)	-	2	4
		(Singapore)	2	-	-
		(Canada)	-	2	4
SILVER	*	7440-22-4 (US)	0.01	0.1	-
		(EU)	-	0.1	-

			(Canada)	-	0.1	0.3
			(Singapore)	0.1	-	-
			(Mexico)	0.1	-	-
COPPER	*	7440-50-8 (US)	0.1 (fume)	0.2 (fume)	-	-
		(EU)	-	0.2 (fume)	-	-
		(Singapore)	0.2(fume)	1(dust)	-	-
		(Canada)	-	0.2 (fume)	0.6 (fume)	-
		(China)	-	0.2(fume)	0.6	-
		(Mexico)	0.2	-	-	-
INDIUM	*	7440-74-8 (US)	0.1	0.1	-	-
		(EU)	-	0.1.	0.3	-
		(Canada)	-	0.1	0.3	-
		(Singapore)	0.1	-	-	-
		(China)	-	0.1	0.3	-
		(Mexico)	0.1	-	-	-
ANTIMONY	*	7440-36-0 (US)	0.5	0.5	-	-
		(EU)	0.5	-	-	-
		(Canada)	-	0.5	1.5	-
		(Singapore)	0.5	-	-	-
		(China)	-	0.5	-	-
		(Mexico)	0.5	-	-	-
LEAD	*	7439-92-1 (US)	0.05	0.05	-	-
		(EU)	-	0.15	-	-
		(Canada)	-	0.05	-	-
		(Singapore)	0.15	-	-	-
		(China)	-	0.05(dust) 0.03(fume)	-	-
		(Mexico)	0.15	-	-	-
ALCOHOLS	4.0-8.5	68475-56-9	N.E.	N.E.	N.E.	N.E.
PROPRIETARY	4.0-8.5	-	N.E.	N.E.	N.E.	N.E.

N.E. = Not established

*See Alloy Table

8.2 Exposure Controls:

Engineering Controls: Use only with production equipment (such as stencil printers and re-flow furnaces) with adequate ventilation and other safety features specifically designed for use with solder paste. Control concentration of all components so that the permissible exposure levels are not exceeded.

Personal protection:

Eyes: Chemical safety glasses/goggles. Face shield for splash hazards.

Respirator: An authority approved or compliant marked air-purifying respirator with a fume/organic chemical cartridge is recommended under certain circumstances (i.e. when re-flowing manually on a plate instead of a ventilated re-flow furnace) where airborne concentrations are expected to be elevated or exceed exposure limits.

Skin: Compatible chemical resistant gloves.

Other: Lab coat, eye-wash fountain in work area. Avoid the use of contact lenses in high fume areas.

Work/Hygienic Practices: Maintain good housekeeping. Clean up spills immediately. DO NOT allow rags or paper towels contaminated with solder paste to accumulate in the work area. Good personal hygiene is essential. Avoid eating, smoking or drinking in the work area. Wash hands thoroughly with soap and water immediately upon leaving the work area. If using lead containing product always follow proper lead worker policies.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties:**

Appearance:	Grey colored paste.	Boiling Point:	Not available.
Odor:	Mild characteristic odor.	Melting Point:	Not available
Specific Gravity:	Not available.	pH:	Not applicable
Vapor Pressure:	Not available.	Solubility in Water:	water soluble (paste)
Vapour Density:	(air=1) Not applicable.	Partition coefficient:	Not established
Relative Density:	Not established	Flammability:	Not applicable
Flash Point:	Not applicable	Method:	Not applicable
Auto-ignition Temperature:	Not applicable	Flammable Limits:	Limits not established
UEL/LEL Limits:	Not applicable	Decomposition Temp:	Not applicable
Viscosity:	Not established	Explosive properties:	Not applicable
Oxidizing Properties:	Not established		

9.2 Other Information: Above data for the whole mixture.

SECTION 10. STABILITY AND REACTIVITY

- 10.1 Reactivity:** Stable.
- 10.2 Chemical Stability:** Stable
- 10.3 Possibility of Hazardous Reactions:** Not established
- 10.4 Conditions To Avoid:** None known
- 10.5 Incompatible Materials:** Avoid contact with acids, bases or oxidizing agents.
- 10.6 Hazardous Decomposition / Combustion:** Harmful organic fumes and toxic oxide fumes may form at elevated temperatures, metal oxide fumes.
- Hazardous Polymerization:** Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects:**

Acute toxicity:	Not established	Mutagenicity:	Not established
Irritation:	Not established	Toxicity for Reproduction:	Not Established
Corrosivity:	Not applicable	Absence of specific data:	None available (not tested)
Sensitization:	Not available		

Repeated dose toxicity: Not established**Carcinogenicity:** Not established**Likely Routes of Entry:** eyes (irritation) /skin (irritation or sensitization) /inhalation (irritation/sensitization) ingestion (may be harmful)**Interactive effects:** None known**Symptoms related to the physical, chemical and toxicological characteristics:**

May cause irritation or sensitization by skin and inhalation.

Delayed and immediate effects as well as chronic effects from short and long-term exposure:

Exposure to rosin fume has been known to cause occupational asthma. Exposure to lead fume, if applicable, may cause harm by inhalation and ingestion. Chronic exposures to lead fume, if applicable, can cause potential harm to the developing fetus. Lead exposure can be toxic.

Mixture verses substance information: None known**Other Information:****Carcinogenicity:** NTP: No (National Toxicity Program)**Listing** OSHA: No (US Occupational Safety & Health Administration)

IARC: Yes - Lead and lead compounds are listed as possible carcinogens. (International Agency for Research on Cancer).

Copper - LD50 – intraperitoneal mouse 3.5 mg/kg.

Silver – LD50 oral – rat > 5,000 mg/kg

Antimony - LD50 oral – rat 7,000 mg/kg

Lead – Suspected human reproductive toxicant. May cause damage to organs through prolonged or repeated exposure. Reproductive toxicity – rat –inhalation, oral/ effects on newborn.

SECTION 12. ECOLOGICAL INFORMATION

This section is subject to future development. Product mixtures not tested.

12.1 Toxicity: No information available**12.2 Persistence and degradability:** No information available**12.3 Bio accumulative potential:** No information available**12.4 Mobility in soil:** No information available**12.5 Results of PBT and vPvB assessments:** No data is available**12.6 Other adverse effects:** No information is available for mixture. Avoid release to environment.

Lead – Toxicity to fish – mortality LOEC – rainbow trout – 1.19 mg/l – 96h. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Bioaccumulation – Oncorhynchus kisutch – 2 weeks

Bio concentration factor (BCF): 12

Copper – Toxicity to daphnia and other aquatic invertebrate's mortality NOEC – Daphnia 0.004 mg/l – 24h.

Antimony – Toxicity to fish – mortality NOEC (sheepshead minnow) 6.2 mg/l – 96h. Toxic to aquatic organisms may cause long term adverse effects in the aquatic environment.

SECTION 13. DISPOSAL CONSIDERATION

13.1 Waste treatment method: Scrap metal alloy usually has value. Contact a commercial reclaimer for recycling. Otherwise, dispose of in accordance with environmental regulations. Containerize material and classify according to applicable regulations. No pre-treatment on site is recommended. Do not dispose of down any drain or waterway. Utilize the same personal protective equipment as the user when handling for disposal.

RoHS (Restriction of Hazardous Substances): Product mixtures do not contain any PBB or PBDT brominated compounds.

Note that product mixtures may contain lead and or cadmium and are not complaint with RoHS. Users should review their particular use for any applicable exemptions that may apply. Review alloy table for products.

SECTION 14. TRANSPORT INFORMATION

Transport in accordance with applicable international regulations and requirements.

Not regulated/non - hazardous under US DOT (United States Department of Transportation).

Not regulated/non - hazardous under international shipping requirements. (Ground/IATA/Ocean)

14.1 UN Number: None

14.2 UN proper shipping name: None

14.3 Transport hazard class(s): None

14.4 Packing group: None

14.5 Environmental hazards: None

14.6 Special precautions for user: None

14.7 Transport in bulk: Not applicable

SECTION 15. REGULATORY INFORMATION

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

The information in this Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated hereunder (29 CFR 1910.1200 ET. SEQ.).

All ingredients are listed on the USEPA TSCA Inventory.

All ingredients are listed on EINECS.

Safety data sheet was developed using EC 1907/2006 amended as of 20 May 2010 EU No 453/2010 and information as stated under regulation EC No 1272/2008 CLP Regulation.

GHS = Global Harmonized System

CLP= Classification, labeling and packaging

Product does not contain any substances ozone depleting substances and therefore not subject to EC 2037/2000.

15.2 Chemical safety assessment: None performed for mixture.

SECTION 16. OTHER INFORMATION

HMIS Hazard Rating:	Health:	2
	Fire:	1
	Reactivity:	0

Revised Date: 19 APRIL 2018

Prepared by: Nancy Swarts, Indium Corporation of America

Approved by: Nancy Swarts, Indium Corporation of America

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