



Expect Service

Radiation Products Design Inc

SAFETY DATA SHEET

RPD INFORMATION

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RPD PRODUCT INFORMATION

RPD is an authorized distributor

Item Number	Description
879-158	158°F Low Melting Alloy

Bismuth, Cadmium, Tin, Lead alloy (10-30% cadmium)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 10/19/2016

Revision date: 10/29/2019

Supersedes: 04/26/2018

Version: 3.2

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Product name : Bismuth, Cadmium, Tin, Lead alloy (10-30% cadmium)
Synonyms : MCP 70; MCP 73; MCP 75; Metspec 158; Metspec 158/165

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Industrial uses: Uses of substances as such or in preparations* at industrial sites
Base metals and alloys
Metal articles

1.3. Supplier

Supplier

5N Plus Lübeck GmbH
Kaninchenborn 24-28
Lübeck, 23560 - Germany
T 49451530040
MSDS@5nplus.com
Contact:MSDS@5NPlus.com

Supplier

5N Plus Trumbull Inc.
120 Corporate Drive
Trumbull, 06611 - United States
T 1 (203) 384-0331 - F (203) 368-4082
MSDS@5nplus.com
Contact:MSDS@5NPlus.com

1.4. Emergency telephone number

Emergency number : ChemTel Contract Number MIS5311335
USA and Canada: +1-800-255-3924 (toll free), Australia: +1-300-954-583, Brazil: +0-800-591-6042, China: +400-120-0751, India: +000-800-100-4086, Mexico: 800-099-0731, International phone number : +1-813-248-0585 (collect calls accepted)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Acute toxicity (inhalation:dust,mist) Category 2	Fatal if inhaled.
Germ cell mutagenicity, Category 2	Suspected of causing genetic defects.
Carcinogenicity, Category 1B	May cause cancer.
Reproductive toxicity, Category 1A	May damage fertility or the unborn child.
Reproductive toxicity, Additional category, Effects on or via lactation	May cause harm to breast-fed children.
Specific target organ toxicity — Repeated exposure, Category 1	Causes damage to organs through prolonged or repeated exposure.
Hazardous to the aquatic environment — Acute Hazard, Category 1	Very toxic to aquatic life.
Hazardous to the aquatic environment — Chronic Hazard, Category 1	Very toxic to aquatic life with long lasting effects.

2.2. GHS Label elements, including precautionary statements

GHS US labelling

Hazard pictograms (GHS US) :



Signal word (GHS US) :

: Danger

Hazard statements (GHS US) :

: Fatal if inhaled.
Suspected of causing genetic defects.
May cause cancer.
May damage fertility or the unborn child.
May cause harm to breast-fed children.
Causes damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary statements (GHS US) :

: Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.

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Do not breathe dust/fume/gas/mist/vapours/spray.
Avoid contact during pregnancy/while nursing.
Wash hands, forearms and face thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
[In case of inadequate ventilation] wear respiratory protection.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If exposed or concerned: Get medical advice/attention.
Immediately call a poison center/doctor/...
Get medical advice/attention if you feel unwell.
Specific treatment is urgent (see supplemental first aid instruction on this label).
Collect spillage.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
Bismuth	(CAS-No.) 7440-69-9	30 - 60	Not classified
Cadmium	(CAS-No.) 7440-43-9	10 - 30	Acute Tox. 2 (Inhalation:dust,mist), H330 Muta. 2, H341 Carc. 1B, H350 Repr. 2, H361 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Tin	(CAS-No.) 7440-31-5	10 - 30	Not classified
Lead	(CAS-No.) 7439-92-1	10 - 30	Carc. 1B, H350 Lact., H362 Repr. 1A, H360 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a physician immediately.
Call a doctor.
First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : Rinse eyes with water as a precaution.
First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

No additional information available

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Dry powder. Foam. Water spray.

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5.2. Specific hazards arising from the chemical

No additional information available

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe dust/fume/gas/mist/vapours/spray.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.
Methods for cleaning up : Mechanically recover the product. Notify authorities if product enters sewers or public waters.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Wear personal protective equipment. Floors, walls and other surfaces in the hazard area must be cleaned regularly. Avoid contact during pregnancy/while nursing. Do not breathe dust/fume/gas/mist/vapours/spray.
Hygiene measures : Separate working clothes from town clothes. Launder separately. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store locked up. Store in a well-ventilated place. Keep container tightly closed.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Bismuth, Cadmium, Tin, Lead alloy (10-30% cadmium)	
No additional information available	
Bismuth (7440-69-9)	
No additional information available	
Cadmium (7440-43-9)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH TWA (mg/m ³)	0.01 mg/m ³ 0.002 mg/m ³ (respirable particulate matter)
ACGIH chemical category	Suspected Human Carcinogen
USA - ACGIH - Biological Exposure Indices	
Biological Exposure Indices (BEI)	5 µg/g creatinine Parameter: Cadmium - Medium: urine - Sampling time: not critical (background) 5 µg/l Parameter: Cadmium - Medium: blood - Sampling time: not critical (background)

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USA - OSHA - Occupational Exposure Limits

OSHA PEL (TWA) (mg/m³)	0.1 mg/m³ (fume) 0.2 mg/m³ (dust) 5 µg/m³
OSHA PEL (Ceiling) (mg/m³)	0.3 mg/m³ (applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect-fume) 0.6 mg/m³ (applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect-dust)

USA - IDLH - Occupational Exposure Limits

US IDLH (mg/m³)	9 mg/m³ (dust)
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Tin (7440-31-5)

USA - ACGIH - Occupational Exposure Limits

ACGIH TWA (mg/m³)	2 mg/m³
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USA - IDLH - Occupational Exposure Limits

US IDLH (mg/m³)	100 mg/m³
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USA - NIOSH - Occupational Exposure Limits

NIOSH REL (TWA) (mg/m³)	2 mg/m³
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Lead (7439-92-1)

USA - ACGIH - Occupational Exposure Limits

ACGIH TWA (mg/m³)	0.05 mg/m³
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8.2. Appropriate engineering controls

Appropriate engineering controls	: Ensure good ventilation of the work station.
Environmental exposure controls	: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Protective gloves

Eye protection:

Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: metallic solid.
Colour	: No data available
Odour	: No data available
Odour threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: Not applicable
Boiling point	: No data available
Flash point	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available

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Relative density	: Not applicable
Solubility	: Insoluble.
Log Pow	: No data available
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive limits	: Not applicable
Explosive properties	: Not classified.
Oxidising properties	: Not classified.

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Oxidizing agent. Strong acids.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Fatal if inhaled.

ATE US (dust,mist)	0.167 mg/l/4h
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Bismuth (7440-69-9)

LD50 oral rat	5 g/kg
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Cadmium (7440-43-9)

LC50 inhalation rat (mg/l)	4.6 - 8.4 mg/m ³ (3 h)
ATE US (dust,mist)	0.05 mg/l/4h

Tin (7440-31-5)

LD50 oral rat	> 2000 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 4.75 mg/l/4h

Lead (7439-92-1)

LD50 oral rat	> 2000 mg/kg Read-across from Lead oxide
LD50 dermal rat	> 200 mg/kg
LC50 inhalation rat (mg/l)	> 5.05 mg/l/4h

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Suspected of causing genetic defects.
Carcinogenicity	: May cause cancer.

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Cadmium (7440-43-9)	
IARC group	1 - Carcinogenic to humans
National Toxicity Program (NTP) Status	Known Human Carcinogens
In OSHA Hazard Communication Carcinogen list	Yes
In OSHA Specifically Regulated Carcinogen list	Yes

Lead (7439-92-1)	
IARC group	2A - Probably carcinogenic to humans

Reproductive toxicity : May damage fertility or the unborn child. May cause harm to breast-fed children.

STOT-single exposure : Not classified

STOT-repeated exposure : Causes damage to organs through prolonged or repeated exposure.

Cadmium (7440-43-9)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Lead (7439-92-1)	
STOT-repeated exposure	Causes damage to organs (blood, central nervous system, kidneys) through prolonged or repeated exposure (Inhalation, oral).

Aspiration hazard : Not classified

Viscosity, kinematic : No data available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Very toxic to aquatic life with long lasting effects.

Cadmium (7440-43-9)	
LC50 fish 1	0.003 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 Daphnia 1	0.0244 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 fish 2	0.006 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])

Tin (7440-31-5)	
LC50 fish 1	> 12.4 Pimephales promelas

Lead (7439-92-1)	
LC50 fish 1	107 µg/l Oncorhynchus mykiss (pH>6.5-8.5)
EC50 Daphnia 1	107.5 µg/l 48h EC50 (pH>7.5-8.5)
LC50 fish 2	194.2 µg/l Pimephales promelas (pH>5.5-8.5)
EC50 Daphnia 2	73.6 µg/l Ceriodaphnia dubia 48h EC50 (pH>5.5-8.5)
NOEC (chronic)	9.2 µg/L Mytilus trossulus (48h, developmental abnormalities, dissolved lead, Marine water)
NOEC chronic crustacea	8.2 Hyalella azteca (42d, mortality, dissolved lead, Freshwater)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

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SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

Transportation of Dangerous Goods

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

Lead	CAS-No. 7439-92-1	10 - 30%
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Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Cadmium	CAS-No. 7440-43-9	10 - 30%
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Cadmium (7440-43-9)

CERCLA RQ	10 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
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Lead (7439-92-1)

CERCLA RQ	10 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
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15.2. International regulations

CANADA

Bismuth (7440-69-9)

Listed on the Canadian DSL (Domestic Substances List)

Cadmium (7440-43-9)

Listed on the Canadian DSL (Domestic Substances List)

Tin (7440-31-5)

Listed on the Canadian DSL (Domestic Substances List)

Lead (7439-92-1)

Toxic Substance (CEPA – Schedule I)	Yes
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EU-Regulations

Bismuth (7440-69-9)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Cadmium (7440-43-9)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

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Tin (7440-31-5)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Bismuth (7440-69-9)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Cadmium (7440-43-9)

Listed on IARC (International Agency for Research on Cancer)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed as carcinogen on NTP (National Toxicology Program)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Tin (7440-31-5)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on Turkish inventory of chemical
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

WARNING: This product can expose you to Cadmium, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Component	State or local regulations
Cadmium(7440-43-9)	U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List; U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances; U.S. - Pennsylvania - RTK (Right to Know) List
Tin(7440-31-5)	U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

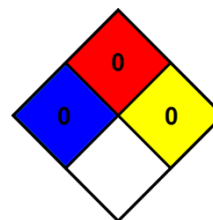
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NFPA health hazard : 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Indication of changes:

Section	Changed item	Change	Comments
	Emergency number	Modified	

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SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.