RELIANCE
ORTHODONTIC
PRODUCTS

Retainium and Extend

Safety Data Sheet
according to Regulation (EC) No. 453/2010
Revision date: 12/15/2017 Version: 2

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

1.1 Product identifier: Titanium and Titanium Alloys

1.2 Relevant identified uses of the substance or mixture and uses advised against: Lingual Retention - Dental

1.3. Details of the supplier of the safety data sheet

Manufacturer:
Reliance Orthodontic Products Inc. 1540 West Thorndale Ave. Itasca, IL 60143 USA
630-773-4009, during normal business hours

EC Representative:
Emergo Europe, Prinsessegracht 20, 2514 AP, The Hague, The Netherlands

Australian Sponsor: Emergo Australia, 201 Sussex St. Darling Park, Tower II, Level 20, Sydney, NSW 2000 Australia

1.4. Emergency telephone number

Emergency number : CHEMTREC - 24-Hour Hazmat Emergency Communications Center
Domestic: 1-800-424-9300 Outside the U.S.: 1-703-527-3887, collect calls accepted

SECTION 2: Hazards identification

2.1 Classification of the Substance or Mixture

CLP/GHS Classification: According to European regulations (No.1272/2008), this product is classified as a Manufactured Article

2.2 Label Elements: No hazard labelling is required.

2.3 Other Hazards: None known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Substance name	Contents	CAS No.	EINECS No.	Classification
Titanium	50-99%	7440-32-6	231-142-3	Not classified as hazardous
Molybdenum	0-37%	7439-98-7	231-107-2	Not classified as hazardous
Zirconium	0-15%	7440-67-7	231-176-9	Flam. Sol. 1 (H228), Pyr. Sol. 1 (H250), Water-react. 1 (H260)
Tin	0-8%	7440-31-5	213-141-8	Not classified as hazardous

See Section 16 for full text of GHS Classifications.

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid Measures

Under normal handling, no first aid will be required. The following first aid is only applicable if these

products are processed in a manner that produces dusts or fumes.

Eye contact:	Do not rub your eyes. Dust particles may cause abrasive eye injury. Flush eyes thoroughly with water, holding open eyelids. Get medical attention if irritation persists.
Skin contact:	Do not rub or scratch. Wash exposed skin with soap and water. If skin irritation or rash occurs: Get medical attention. Launder contaminated clothing before reuse.
Inhalation:	If overexposed to dust or fumes remove victim to fresh air and get medical attention if irritation or symptoms develop.
Ingestion:	If dust is swallowed, seek medical attention.
4.2 Most Important symptoms and effects, both acute and delayed:	Non-Hazardous as supplied. Exposure to product dust and fumes through processing may cause the following effects: Eye and skin contact with dust may cause mechanical irritation. May cause gastrointestinal effects if swallowed. Excessive exposure to welding fumes, gases or dust may cause irritation of eyes, nose or throat. Inhalation of fumes may result in metal fume fever (metallic taste in mouth, dryness and irritation of throat, chills and fever).
4.3 Indication of any immediate medical attention and special treatment needed:	Immediate medical attention is generally not required.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing Media:	Not flammable in the form as distributed. Use any media that is appropriate for the surrounding fire. Finely divided particles, dusts or pieces resulting from processing of this product may burn or ignite. Use dry sand, dry graphite, or inert gas to smother the fire. Do not use water or carbon dioxide on burning metal as an explosion may occur.
5.2 Special Hazards Arising from the Substance or Mixture:	Very fine, high surface area material resulting from grinding, buffing, polishing, or similar processes of this product may ignite and burn. Minimize the generation and accumulation of dust.
5.3 Advice for Fire-Fighters:	Firefighters should wear full emergency equipment and approved positive pressure self-contained breathing apparatus for all fires involving chemical products.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures:	Wear appropriate protective clothing and equipment (see section 8). If dust is present, avoid contact with skin, eyes or clothing. Do not breathe dust or fume.
6.2 Environmental Precautions:	Avoid release into the environmental. Report releases as required by local, and national authorities.

6.3 Methods and Material for Containment and Cleaning Up: Pick up material and place into a container for disposal or reprocessing. If dust is present, wet down and collect in a manner to minimize the generation of airborne dusts or vacuum with a high efficiency vacuum cleaner. If a vacuum is used, explosion proof equipment is required. Non-sparking tools should be used. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentrations. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air.).

6.4 Reference to Other Sections: Refer to Section 8 for personal protective equipment and Section 13 for disposal information.

SECTION 7: HANDLING and STORAGE

7.1 Precautions for Safe Handling Non-Hazardous as supplied. Avoid creating and breathing dusts. For product dust exposure: Avoid contact with eyes, skin and clothing. Wear protective clothing and equipment as described in Section 8. Use only with adequate ventilation. Do not eat, drink or smoke when using this material. Launder contaminated clothing before re-use. Wash thoroughly with soap and water after handling. Minimize the generation and accumulation of dust. Keep dust away from open flames, hot surfaces and sources of ignition. Follow good housekeeping practices to keep surfaces, including areas overhead such as piping, drop ceilings, ductwork, etc. free from settled dust. Provide adequat precautions, such as electrical grounding and bonding, or inert atmospheres.

7.2 Conditions for Safe Storage, Including any Incompatibilities: Store in a dry location. Keep away from acids, oxidizing agents and halogens.

7.3 Specific end use(s): Dental applications

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters: The following exposure limits only apply if processing produces dust or fumes.

Titanium	None established
Molybdenum	10 mg/m^3 (Inhalable),3 mg/m^3 (Respirable) TWA ACGIH TLV 15 mg/m^3 (Total dust) TWA OSHA PEL 10 mg/m^3 TWA, 20 mg/m^3 STEL (Inhalable aerosol) UK WEL
Zirconium	5 mg/m^3 TWA, 10 mg/m^3 Ceiling ACGIH TLV 5 mg/m^3 TWA OSHA PEL 1 mg/m^3 TWA, 1 mg/m^3 STEL DFG MAK (Respirable fraction) 5 mg/m^3 TWA, 10 mg/m^3 STEL UK WEL
Tin	2 mg/m^3 TWA ACGIH TLV 2 mg/m^3 TWA OSHA PEL 2 mg/m^3 TWA, 4 mg/m^3 STEL UK WEL 2 mg/m^3 TWA EU WEL

Note: If not listed above, refer to local regulations for specific country exposure limits

8.2 Exposure Controls:

-Engineering Measures:	No special ventilation is required for normal handling of these products. If processing generates dust or fumes, use local exhaust or general ventilation as required to minimize exposure to dust and fumes; and to maintain the concentration of contaminants below occupational applicable limits.
- Respiratory Protection:	Use an approved respirator if exposure limits are exceeded or where dust/fume exposures are excessive. Selection of respiratory protection depends on the contaminant type, form and concentration. Select and use respirators in accordance with applicable regulations and good industrial hygiene practice.
- Hand Protection:	None required unless processing generates dust. Wear impervious gloves if dust is generated. Follow EN 374.
- Eye/face Protection:	None required unless processing generates dust. Wear safety glasses with side shields or dust proof goggles where needed to avoid eye contact with dust. Follow EN166.
- Other Protective Clothing or Equipment:	None required unless processing generates dust. Protective clothing should be word as needed to prevent contamination of personal clothing. Follow EN 13034.

SECTION 9: PHYSICAL and CHEMICAL PROPERTIES

9.1 Information on basic Physical and Chemical Properties

Appearance:	Silver-gray metal.
Odor:	Odorless.
Odor Threshold:	Not determined
pH:	Not applicable
Melting/Freezing Point:	1660 °C / 3020 °F
Boiling Point:	Not applicable
Flash Point: :	Not applicable
Evaporation Rate: (n-butylacetate =1)	Not applicable
% Volatile by Volume:	0%
Lower Flammability Limit:	Not applicable
Upper Flammability Limit:	Not applicable
Vapor Pressure:	Not applicable
Vapor Density(Air=1):	Not applicable
Solubility:	Insoluble
Autoignition Temperature:	Not applicable
Decomposition Temperature:	Not determined
Viscosity:	Not applicable
Explosive Properties:	High concentrations of dust in the presence of an ignition source could result in a dust explosion.
Oxidizing Properties:	Not applicable
Specific Gravity (H_2O= 1):	4.47
Molecular Formula:	Not determined
Molecular Weight:	Not determined

9.2 Other Information: None.

SECTION 10: STABILITY and REACTIVITY

10.1 Reactivity: Not normally reactive.

10.2 Chemical Stability: Stable.

10.3 Possibility of Hazardous Reactions: None expected.

10.4 Conditions to Avoid: Avoid dust formation.

10.5 Incompatible Materials: Acids, oxidizing agents and halogens.

10.6 Hazardous Decomposition Products: Extreme heat from fire or processing (e.g. welding, brazing, machining, etc.) may produce toxic or irritating airborne particulate, including metal and metallic oxide fumes. Reaction with water, steam, acids, etc. can evolve hydrogen, which is highly dangerous fire and explosion hazard.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects:
Potential Health Effects: Under normal handling, no adverse effects will occur. The following information is only applicable if these products are processed in a manner that produces dusts or fumes.

Eye Contact: Dust particles or filings may cause abrasive injury to the eyes.

Skin contact: May cause mechanical irritation or abrasions.

Inhalation: Excessive exposure to fumes, gases or dust may cause irritation of nose or throat. Inhalation of fumes may result in metal fume fever (metallic taste in mouth, dryness and irritation of throat, chills and fever).

Ingestion: None expected under normal use conditions. May cause gastrointestinal effects if swallowed.

Skin corrosion/irritation: Not a skin corrosive. Dust may cause mechanical irritation.

Eye damage/ irritation: Dust may cause mechanical irritation and possible injury.

Respiratory Irritation: Dust may be irritating to the respiratory system.

Respiratory Sensitization: Not a respiratory sensitizer.

Skin Sensitization: Not a skin sensitizer.

Germ Cell Mutagenicity: Not classified a germ cell mutagen.

Carcinogenicity: None of the other components are classified as a carcinogen by IARC or the EU CLP.

Reproductive Toxicity: No effects on reproduction are expected.

Specific Target Organ Toxicity:

Single Exposure: No data available.

Repeat Exposure: Long-term overexposure to dust or fumes may cause lung damage (fibrosis) with symptoms of coughing, shortness of breath and diminished breathing capacity. Causes damage to lungs through prolonged or repeated inhalation.

Aspiration: Not an aspiration hazard.

Acute toxicity:
Titanium: Oral rat LD50 > 5000 mg/kg
Molybdenum: Oral rat LD50 > 2000 mg/kg, Inhalation rat LC50 > 3.92 mg/L, Dermal rat LD50 > 2000 mg/kg
Zirconium: Oral rat LD50 > 5000 mg/kg, Inhalation rat LC50 > 4.3 mg/L/4 hr.
Tin: Oral rat LD50 >2000 mg/kg; Dermal rat LD50 >2000 mg/kg, Inhalation rat LC50 4.75 mg/L/4 hr.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity:
Titanium: 96 hr. LC50 Oncorhynchus mykiss >100 mg/L
Molybdenum: 96 hr. LC50 Pimephales promelas 609.1 mg/L
Zirconium: 96 hr. LC50 Danio rerio >100 mg/L, 48 hr. EC50 daphnia magna >100 mg/L
Tin: 96 hr. LC50 Pimephales promelas >12.4 ug/L

12.2 Persistence and degradability: Biodegradation is not applicable to inorganic compounds.

12.3 Bioaccumulative Potential: No data available.

12.4 Mobility in Soil: No data available.

12.5 Results of PVT and vPvB assessment: Does not meet classification criteria.

12.6 Other Adverse Effects: None.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods:
Dispose in accordance with all applicable local, state/provincial and federal regulations. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

SECTION 14: TRANSPORTATION INFORMATION

	14.1 UN Number	14.2 UN Proper Shipping Name	14.3 Hazard Class(s)	14.4 Packing Group	14.5 Environmental Hazards
EU ADR/RID	N/A	Not classified for transport	N/A	N/A	N/A
IMDG	N/A	Not classified for transport	N/A	N/A	N/A
IATA/ICAO	N/A	Not classified for transport	N/A	N/A	N/A

14.6 Special Precautions for User: None

14.7 Transport in Bulk According to Annex III MARPOL 73/78 and the IBC Code: Not determined.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

INTERNATIONAL INVENTORIES

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

SECTION 16: OTHER INFORMATION

CLP/GHS Classification and H Phrases for Reference (See Section 3)

Flam. Sol. 1 – Flammable Solid Category 1
Pyr. Sol. 1 – Pyrophoric Solid Category 1
Water-react 1 - Substances and Mixtures which, in contact with water, Emit Flammable Gases Category 1
H228 - Flammable solid.
H250 - Catches fire spontaneously if exposed to fire.
H260 – In contact with water releases flammable gases, which may ignite spontaneously.

The information provided in this safety data sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.