

SAFETY DATA SHEET

Conforms to Regulation No. 29 CFR 1910.1200

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

1.1 Product identifier

Product name: LOMON® R-996
Product description: Titanium dioxide
Product type: Powder
CAS number: 13463-67-7
Synonyms: Titanium oxide (TiO₂), Pigment White 6
Colour Index Number: 77891

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

Product use: Pigment, opacifying agent.
Uses advised against: Do not use for cosmetics, food additives, drug additives, feed additives or permanent implant applications.
Reason: Lack of related experience and / or data.

1.3 Details of the supplier of the safety data sheet

Supplier of the SDS: Billions Europe Limited
Winder House,
Kingfisher Way,
Stockton-on-Tees,
TS18 3EX,
United Kingdom
Telephone: +44 (0)1642 692750 (Available during office hours 8am-5pm GMT)
e-mail address of person responsible for this SDS: RAPS@billionseurope.com

Manufacturer: Sichuan Lomon Titanium Industry co., Ltd
23# Gao Peng Rd.,
Hi-tech Industrial Development Zone,
Chengdu, Sichuan,
China
Zhongzhan District

1.4 Emergency telephone number

Telephone number (Emergency): +86 2885183249
National advisory body/Poison Centre: NA

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SECTION 2: Hazards Identification

2.1 Classification of the substance or mixture

Product definition: Substance.
GHS Classification according 29 CFR 1910.1200: Not a hazardous substance or mixture.

2.2 Label elements

GHS Labelling elements: Not Applicable.

2.3 Other hazards

Other hazards which do not result in classification: Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

SECTION 3: Composition/information on ingredients

Substance /mixture : Mixture

Product/ingredient name	Identifiers	%	Classification	Type
Titanium dioxide	CAS: 13463-67-7	90-100	Not classified.	[2]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

Occupational exposure limits, if available, are listed in Section 8.

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SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact:	Rinse eyes thoroughly for at least 15min with plenty of water, occasionally lifting the upper and lower eyelids. Get medical attention if irritation occurs.
Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
Skin contact:	Wash skin with soap and water. If irritation occurs get medical attention.
Ingestion:	Rinse out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur. Never give anything by mouth to an unconscious person.
Protection of first-aiders:	No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
Inhalation:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. Exposure to dust may aggravate pre-existing respiratory conditions.
Skin contact:	The product is not irritant but as with all fine powders can absorb moisture and natural oils from the surface of the skin during prolonged exposure.
Ingestion:	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact:	No significant irritation expected other than mechanical irritation.
Inhalation:	Dust may induce mild and temporary upper respiratory irritation with cough and shortness of breath.
Skin contact:	Individuals with sensitive skin may experience skin drying on prolonged or repeated exposure.
Ingestion:	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician:	Treat symptomatically.
Specific treatment:	No specific treatment.

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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding environment and circumstances.

Unsuitable extinguishing media: None Known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture: Product is inert, non-flammable and non-combustible. No specific fire or explosion hazard.

Hazardous combustion products: Decomposition products may include the following materials: metal oxide/oxides. At high temperature decomposition products may include formaldehyde and ethyl acrolein as a result of decomposition of the organic component.

5.3 Advice for firefighters

Hazards from the substance or mixture: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	No action shall be taken involving any personal risk or without suitable training. Avoid generation of dust. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing dust. Put on appropriate personal protective equipment.
For emergency responders:	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials.

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Small spill:	Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.
Large spill:	Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor.
Additional information:	Even at low concentration, the product renders the discharge in liquid effluent highly visible.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

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SECTION 7: Handling and storage

The information in this section contains generic advice and guidance.

7.1 Precautions for safe handling

- Protective measures:** Put on appropriate personal protective equipment (see Section 8). Avoid breathing dust. Avoid generation of dust. Ensure adequate ventilation. Local exhaust ventilation may be necessary. Manual handling guidelines should be adhered to when handling sacks. Each work environment must be assessed to determine hazards.
- Advice on general occupational hygiene:** Observe good industrial hygiene practice for chemical handling. Individuals having sensitive skin may find it beneficial to use a barrier cream or moisturizer when excessive or prolonged contact with the skin is likely. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

- Recommendations:** Not applicable.

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SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance.

8.1 Control parameters

Occupational exposure limits:

Product/ingredient name	Exposure limit values
Titanium dioxide	OSHA Z-1 (United States). TWA: 15 mg/m ³ . 8-hour TWA (Time Weighted Average)Form: Total dust.

Recommended monitoring procedures:

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

8.2 Exposure controls

Appropriate engineering controls:

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures:

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Individuals having sensitive skin may find it beneficial to use a barrier cream or moisturizer when excessive or prolonged contact with the skin is likely. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection:

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If operating conditions cause high dust concentrations to be produced, use dust goggles.

Hand protection:

Chemical-resistant, impervious gloves complying with an approved standard should always be worn when handling chemical products if a risk assessment indicates this is necessary.

Body protection:

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection:

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection:

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators.

Follow OSHA respirator regulations 29 CFR 1910.134. Use a NIOSH/MSHA approved respirator.

Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:	Solid. [Powder.]
Colour:	White.
Odour:	Odourless.
Odour threshold:	Not applicable.
pH	6-8.5(10% slurry).
Melting point/freezing point;	1560 to 1850°C (approximately).
Initial boiling point and boiling range:	2500-3000°C.
Flash point:	Does not flash.
Evaporation rate:	Not applicable.
Flammability (solid, gas):	The product is not flammable.
Burning time:	Not applicable.
Upper/lower flammability or explosive limits:	Not applicable.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	Not applicable.
Solubility(ies)	Not applicable.
Partition coefficient n-octanol/water	Not applicable.
Auto-ignition temperature:	Not applicable.
Decomposition temperature:	Not applicable.
Viscosity:	Not applicable.
Explosive properties:	Not applicable.
Oxidising properties:	Not applicable.

9.2 Other Information

Density:	3.5 to 4.2 g/cm ³ [20°C (68°F)]
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SECTION 10: Stability and reactivity

Reactivity:	None reasonably foreseeable.
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Chemical stability:	The product is stable.
Possibility of hazardous reactions:	None known.
Conditions to avoid:	None known.
Incompatible materials:	None known.
Hazardous decomposition products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced. At high temperature, decomposition products could include Metal oxides. At high temperature decomposition products may include formaldehyde and ethyl acrolein as a result of decomposition of the organic component.

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SECTION 11: Toxicological information

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Test	Species	Dose	Exposure
Titanium dioxide	LC50 Inhalation dusts and mists.	Rat	>6.82 mg/L	4 hours
	OECD 425 Acute Oral Toxicity LD50	Rat	>5000 mg/kg bw	
	LD50 Dermal	Rabbit	>10000mg/kg	

Conclusion/Summary: practically non toxic.

Irritation/corrosion

Product/ingredient name	Test	Species	Result
Titanium dioxide	OECD 404 Acute Dermal irritation/corrosion	Rabbit	Non irritant
	OECD 405 Acute Eye irritation/corrosion	Rabbit	Non irritant

Sensitisation

Product/ingredient name	Test	Route of exposure	Species	Result
Titanium dioxide	OECD 429 Skin Sensitisation: Local Lymph Node Assay	Skin	Mouse	Not sensitising
	OECD 406 Skin Sensitisation	Skin	Guinea Pig	Not sensitising
	Inhalation sensitisation	Inhalation	Mouse	Not sensitising

Mutagenicity

Conclusion/Summary: Titanium Dioxide Not mutagenic in a standard battery of genetic toxicological tests.

Carcinogenicity

Conclusion/Summary: Titanium Dioxide: based on the results of chronic inhalation studies (with positive results only in a single species - rat), IARC has concluded that: "There is inadequate evidence in humans for the carcinogenicity of titanium dioxide." but that: "There is sufficient evidence in experimental animals for carcinogenicity of titanium dioxide". IARC's overall evaluation was that "titanium dioxide is possibly carcinogenic to humans (Group 2B)."

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Lomon Billions Group have reviewed the available animal carcinogenicity and mechanistic data together with workplace epidemiology data for titanium dioxide and concludes that the weight of scientific evidence indicates that there is no causative link between titanium dioxide exposure and cancer risk in humans and that workplace exposures in compliance with applicable exposure standards will not result in lung cancer or chronic respiratory diseases in humans.

No ingredients of this product present at levels greater than or equal to 0.1% are listed on OSHA's list of regulated carcinogens.

No ingredients of this product present at levels greater than or equal to 0.1% are listed as known or anticipated carcinogen by NTP (14th edition).

Reproductive toxicity

Conclusion/Summary:

Based on available data, the classification criteria are not met.

Teratogenicity

Product/ingredient name	Test	Species	Result
Titanium dioxide	OECD Guideline 414 Prenatal Developmental Toxicity Study NOAEL	Rat	NOAEL >1000mg/kg bw/day

Conclusion/Summary:

Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure)

Product/ingredient name	Result	Route of exposure
Titanium dioxide	Not classified Not classified	Inhalation Oral

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Result	Route of exposure
Titanium dioxide	Not classified Not classified Not classified	Inhalation Oral Dermal

Aspiration hazard

Product/ingredient name	Result
Titanium dioxide	Based on available data, the classification criteria are not met.

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Information on the likely routes of exposure:

Routes of exposure anticipated: Inhalation, oral, dermal.

Potential acute health effects

Inhalation:

Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. Exposure to dust may aggravate pre-existing respiratory conditions.

Ingestion:

No known significant effects or critical hazards.

Skin contact:

The product is not irritant but as with all fine powders can absorb moisture and natural oils from the surface of the skin during prolonged exposure.

Eye contact:

Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes due to mechanical irritation.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation:

Dust may induce mild and temporary upper respiratory irritation with cough and shortness of breath.

Ingestion:

No specific data

Skin contact:

Individuals with sensitive skin may experience skin drying on prolonged or repeated exposure.

Eye contact:

No significant irritation expected other than mechanical irritation.

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SECTION 12: Ecological information

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

12.1 Toxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result
Titanium dioxide	OECD 203	Acute LC50	96 hours	Fish	>10000mg/L
	OECD 203	Acute LC50	96 hours	Fish	>1000mg/L
	OECD 202	Acute LC50	48 hours	Daphnia	>1000mg/L
Titanium Dioxide	OECD 201	EC50		Pseudokirchneriella subcapitata	61mg/L
Titanium Dioxide	OECD 209	EC50	3 hours	activated sludge	>10000mg/L

Conclusion/Summary: Based on available data, the classification criteria are not met.

12.2 Persistence and degradability

Conclusion/Summary: Not applicable, inorganic substance/preparation.

12.3 Bio accumulative potential

Product/ingredient name	LogPow	BCF	Potential
Titanium dioxide			Low

12.4 Mobility in soil

Soil/water partition coefficient: Not available.

Mobility: The product has low mobility in soil. Insoluble in water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT substance / Not classified as vPvB substance

12.6 Other Adverse effects

No data available.

12.7 Additional Information

No data available.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance.

13.1 Waste treatment methods

Methods of disposal: Disposal via a licensed disposal company. Dispose in compliance with local and national regulations.

Special precautions: This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

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SECTION 14: Transport information

	14.1 UN-Number	14.2 UN proper shipping name	14.3 Transport hazard class
ADR/RID	Not regulated.	Not applicable.	Not applicable.
ADN/ADNR	Not regulated.	Not applicable.	Not applicable.
IMDG	Not regulated.	Not applicable.	Not applicable.
IATA	Not regulated.	Not applicable.	Not applicable.

SECTION 15: Regulatory information

EPA EPCRA – Emergency Planning and Community Right to Know

EPCRA (SARA Title III) CERCLA CAA 112(r)	This material does not contain any components which are listed in EPCRA Section 302 Extremely Hazardous Substances CERCLA Hazardous Substances EPCRA Section 313 Toxic Chemicals CAA 112(r) Regulated Chemicals for Accidental Release Preventions Based on the List of Lists published March 2015
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US State Regulations

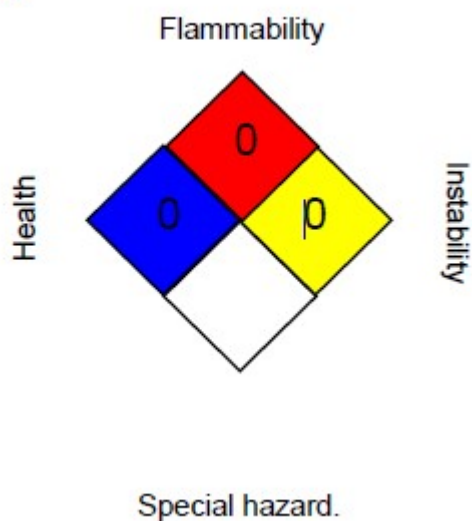
Pennsylvania Right to Know	Titanium Dioxide CAS 13463-67-7 Aluminium Oxide CAS 1344-28-1
California Prop. 65	Titanium dioxide (airborne, unbound particles of respirable size) Listed as causing cancer. For more information https://www.p65warnings.ca.gov/
California Permissible Exposure Limits for Chemical Contaminants	Titanium Dioxide CAS 13463-67-7 See Particulates not otherwise regulated Total dust 10mg/M3 Respirable fraction 5mg/M3

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SECTION 16: Other information

NFPA:



HMIS® IV:

HEALTH	/	0
FLAMMABILITY		0
PHYSICAL HAZARD		0

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Indication of changes:	Marked on the SDS. Significant change from previous version is denoted with a double bar.
Key literature references and sources for data:	IUCLID Dossier. ECHA website.
Abbreviations and acronyms	
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road.
CAS	Chemical Abstract Service number.
CERCLA	Comprehensive Environmental Response Compensation, and Liability Act
GHS	Globally Harmonised System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median Lethal Concentration
LD50	Median Lethal Dose
MSHA	Mine Safety and Health Administration
NOAEL	No Observed Adverse Effect Level
NTP	National Toxicology Program
OECD	Organisation for Economic Co-operation and Development
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
PBT	Persistent, Bioaccumulative and Toxic
SARA	Superfund Amendments and Reauthorization Act;
SDS	Safety Data Sheet
TWA	Time Weighted Average
vPvB	Very Persistent and very Bioaccumulative
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Sources of key data used to compile the SDS	Internal technical data. Raw material SDS. ECHA website/REACH registration http://echa.europa.eu/

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Notice to the reader

Lomon Billions Group Co., Ltd is the result of the merger of Henan Billions Chemicals Co., Ltd with Sichuan Lomon Titanium Industry Co., Ltd. Billions Europe is a wholly-owned subsidiary of Lomon Billions Group Co., Ltd

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THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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