

SAFETY DATA SHEET

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according to Regulation (EC) No. 1907/2006

Version: 1.7

Art. Nr.: 1781303

Revision Date: 10.12.2019

Print Date: 11.12.2019

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

1.1 Product identifier

Art. Nr.	1781303
Product name	Iriodin® Royal Gold Innen

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

Identified uses	Colouring agent
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1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	PM-OQR * e-mail: PM_SDS_Supply@merckgroup.com
Regional representation	Merck Chemicals Ltd * The Old Brickyard * New Road * Gillingham * Dorset * SP8 4XT * Tel. +44 121 619 8101 *pmcustomerservice@merckgroup.com.

1.4 Emergency telephone number

+49 (0) 6151 722440

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

Precautionary statements : **Prevention:**
P260 Do not breathe dust.

Additional Labelling

EUH210 Safety data sheet available on request.

2.3 Other hazards

None known.

SECTION 3: Composition/information on ingredients

Chemical nature	: Mica coated with:
	: titanium dioxide, ferric oxide

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tin oxide

3.1 Substance

Not applicable

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. Registration number	Classification	Concentration (% w/w)
Substances with a workplace exposure limit			
tin dioxide	18282-10-5 01-2119946062-44-XXXX		>= 1 - < 10

SECTION 4: First aid measures

4.1 Description of first aid measures

- If inhaled : fresh air.
- In case of skin contact : Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- In case of eye contact : rinse out with plenty of water.
Remove contact lenses.
- If swallowed : make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : We have no description of any toxic symptoms.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Not combustible.

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Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

Special protective equipment for firefighters : Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information : Suppress (knock down) gases/vapours/mists with a water spray jet.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Advice for non-emergency personnel:
Avoid inhalation of dusts.
Evacuate the danger area, observe emergency procedures, consult an expert.
Advice for emergency responders:
Protective equipment see section 8.

6.2 Environmental precautions

Environmental precautions : No special precautionary measures necessary.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Observe possible material restrictions (see sections 7 and 10).
Take up dry. Dispose of properly. Clean up affected area.
Avoid generation of dusts.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Observe label precautions.

Hygiene measures : Change contaminated clothing. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in original container.

Further information on storage conditions : Tightly closed. Dry.

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Risks from decomposition products: see section 10.3

Recommended storage temperature : Recommended storage temperature see product label.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
mica (muscovite)	12001-26-2	TWA (Inhalable)	10 mg/m ³	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/4 General methods for sampling and gravimetric analysis or respirable, thoracic and inhalable aerosols, Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.			
	12001-26-2	TWA (Respirable)	0.8 mg/m ³	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/4 General methods for sampling and gravimetric analysis or respirable, thoracic and inhalable aerosols, Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.			
	12001-26-2	TWA (Respirable fraction)	3 mg/m ³	ACGIH
iron(III) oxide	1309-37-1	TWA (inhalable dust)	10 mg/m ³	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/4 General methods for sampling and gravimetric analysis or respirable, thoracic and inhalable aerosols, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m ⁻³ 8-hour TWA of inhalable dust or 4 mg.m ⁻³ 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed to dust above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limits., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system, and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract.			

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	Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/4., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.			
	1309-37-1	TWA (Respirable dust)	4 mg/m ³	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/4 General methods for sampling and gravimetric analysis or respirable, thoracic and inhalable aerosols, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m ⁻³ 8-hour TWA of inhalable dust or 4 mg.m ⁻³ 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed to dust above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limits., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system, and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/4., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.			
	1309-37-1	TWA (Respirable fraction)	5 mg/m ³	ACGIH
tin dioxide	18282-10-5	TWA	2 mg/m ³ (Tin)	GB EH40
	18282-10-5	STEL	4 mg/m ³ (Tin)	GB EH40
	18282-10-5	TWA	2 mg/m ³ (Tin)	ACGIH
General threshold limit value for dust		TWA (Inhalable)	10 mg/m ³	GB EH40
Further information	The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m ⁻³ 8-hour TWA of inhalable dust or 4 mg.m ⁻³ 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed to dust above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limits., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.			
		TWA (Respirable)	4 mg/m ³	GB EH40
Further information	The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m ⁻³ 8-hour TWA of inhalable dust or 4 mg.m ⁻³ 8-hour TWA of respirable			

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	dust. This means that any dust will be subject to COSHH if people are exposed to dust above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limits., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.
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8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Personal protective equipment

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled and must meet the specifications of a standard EN/ISO/DIN. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye protection : Safety glasses

Hand protection : not required

Respiratory protection : required when dusts are generated.

Recommended Filter type: : Filter P 1 (acc. to DIN 3181) for solid particles of inert substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

General advice : No special precautionary measures necessary.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	powder
Colour	yellow
Odour	odourless
Odour Threshold	Not applicable
pH	6 - 9 at 100 g/l 20 °C (slurry)

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Melting point	No information available.
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	3.1 - 3.3 g/cm ³ at 20 °C
Solubility(ies)	No information available.
Water solubility	at 20 °C insoluble
Partition coefficient: n- octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, kinematic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Bulk density	200 - 240 kg/m ³
Particle size	Particle size 10 - 60 µm

SECTION 10: Stability and reactivity

10.1 Reactivity

See section 10.3

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10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Hazardous reactions : no information available

10.4 Conditions to avoid

Conditions to avoid : no information available

10.5 Incompatible materials

Materials to avoid : no information available

10.6 Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product:

Acute oral toxicity : No data available
Acute inhalation toxicity : No data available
Acute dermal toxicity : No data available

Components:

tin dioxide:

Acute oral toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Remarks: (ECHA)

Acute inhalation toxicity : LC50 (Rat, male and female): Exposure time: 4 h
Test atmosphere: aerosol
Method: OECD Test Guideline 403
Remarks: An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration.

Acute dermal toxicity : No data available

Skin corrosion/irritation

Product:

No data available

Components:

tin dioxide:

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Method: OECD Test Guideline 431

Result: No skin irritation

Remarks: (ECHA)

Serious eye damage/eye irritation

Product:

No data available

Components:

No data available

Respiratory or skin sensitisation

Product:

No data available

Components:

tin dioxide:

Test Type: Local lymph node assay (LLNA)

Species: Mouse

Method: OECD Test Guideline 429

Result: Does not cause skin sensitisation.

Remarks: (ECHA)

Germ cell mutagenicity

Product:

No data available

Components:

No data available

Carcinogenicity

Product:

This information is not available.

Components:

This information is not available.

STOT - single exposure

Product:

No data available

Components:

No data available

STOT - repeated exposure

Product:

No data available

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Components:

No data available

Repeated dose toxicity

Product:

No data available

Components:

No data available

Aspiration toxicity

Product:

No data available

Components:

No data available

11.2 Other information

Product:

The results of animal experiments using pigments of this type indicate no toxicologically relevant properties. Since the substance is poorly absorbed, no systemic effects are to be anticipated. Inhalation of the dusts should be avoided as even inert dusts may impair respiratory organ functions. The individual test results were as follows: skin tolerance (rabbit): no irritant effect; eye irritation test (rabbit): no irritant effect; LD₅₀ (oral, rat): not determinable; all animals still alive after 5,000 mg/kg.

Subchronic toxicity (rat): no appreciable findings up to 20 000 ppm.

LC₅₀ (inhalational, rat): > 10.1 ml/l/4 h

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Product:

No data available

Components:

tin dioxide:

Toxicity to fish

: NOEC (Oncorhynchus mykiss (rainbow trout)): 100 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
Remarks: (above the solubility limit in the test medium)
(ECHA)

LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: (above the solubility limit in the test medium)
(ECHA)

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Toxicity to daphnia and other aquatic invertebrates	:	NOEC (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Remarks: (above the solubility limit in the test medium) (own results) EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Remarks: (above the solubility limit in the test medium) (own results)
Toxicity to algae/aquatic plants	:	NOEC (Desmodesmus subspicatus (green algae)): 9.77 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 Remarks: (above the solubility limit in the test medium) (ECHA)
Toxicity to microorganisms	:	EC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209 Remarks: (above the solubility limit in the test medium) (ECHA)

12.2 Persistence and degradability

Product:

No data available

Components:

tin dioxide:

Biodegradability : Remarks: The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Product:

No data available

Components:

tin dioxide:

No data available

12.4 Mobility in soil

Product:

No data available

Components:

tin dioxide:

No data available

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12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

Components:

tin dioxide:

No data available

12.6 Other adverse effects

Product:

Additional ecological information : No ecological problems are to be expected when the product is handled and used with due care and attention.

Components:

tin dioxide:

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

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

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

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Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

Storage class : 10 - 13

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

Training advice

Provide adequate information, instruction and training for operators.

Key or legend to abbreviations and acronyms used in the safety data sheet

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AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Disclaimer

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.