

**Safety Data Sheet According to 91/155 EEC****1 Commercial product name and supplier**

Commercial product name: Upcera zirconia block

Designation/application/use: zirconium for dental use

Producer/Supplier: Shenyang Upcera Co., Ltd

TOX Emergency Number: 0086-24 88086882

**2 Composition**

chem. characterisation: presintered, prous ZrO<sub>2</sub> -Block

composition:	CAS-Nr.	Symbol	R-Infos	EG-Nr.
Zirkonium oxide (ZrO <sub>2</sub> ) 94%	1314-23-4			215-222-7
&				
hafnium oxide	7440-58-6			231-166-4
Aluminium oxide <0.5%	1344-28-1			215-691-6
Yttrium oxide <5.5%	1314-36-9			215-233-5

additional notes: the hazards in chapter 4-8 and 12 revere not to the product itself but on the dust released by processing.

**3 Hazard Identification**

Hazard denomination: not hazardous according to 99/45/ECC

Special hazard identification: None.

for men and environment: None.

**4 First Aid measures:**

general information: no special measures needed.

after swallowing: do not induce vomiting. rinse mouth thouroughly with water if person is conscious.

Eye contact: wash eyes with large quantities of clean water for at least 15 minutes. In case after-effects occur call a physician.

Skin contact: Wash thoroughly with warm water, if irritations occure or persist, consult physician.

Inhalation: Move person into fresh air. if irritations occure or persist, consult physician.

**5 Fire fighting measures:**

flammability: No, no special fire fighting measures required.

non suitable extinguishing agent: not known

further informations: none

**6 Accidental release measures**

Individual protection: use protective dust mask and object dust suction

Environmental protection: Avoid discharge into drains or surface water.

Cleansing: Clean up mechanically.

Additional indications: No hazardous substances are released.

## 7 Handling and storage

Handling:	Only adequately trained personnel should handle this product. Keep out of reach of children.
Industrial hygiene:	Usual hygienic measures are necessary. When using, do not eat or drink or smoke.
Storage:	No special requirements for place of storage and containers. Not further indications necessary for storage, no restrictions for storage with other products.
Fire and explosion protection:	Not required.
Indications for safe handling:	Provide adequate local ventilation or suction unit, especially in case of dust exposure.
Further indications:	Not required.

## 8 Exposure controls/personal protection

Exposition threshold / common dust threshold see TRGS 900	alveolar fraction	3 mg/cm <sup>3</sup>
	inhaleable fraction	10 mg/cm <sup>3</sup>
	zirkoniumdioxid (ZrO <sub>2</sub> ) CAS-Nr. 1314-23-4  EG-Nr. 215-222-7 TRGS 900	
	zirkoncompounds	
	inhaleable fraction	5 mg/cm <sup>3</sup>
	peak threshold	4 mg/cm <sup>3</sup>

technical measures:	Provide adequate local ventilation or suction unit
personal safety measures:	use respirator if no adequate local suction is available.
if dust occurs:	wear protective goggles with side protection and light protective clothing, clean skin after exposure and attend to skin with skincare.
personal attitude:	avoid contact with skin, mouth, eyes and clothing. wear protective goggles with side protection and light protective clothing, clean skin after exposure and attend to skin with skincare. don not eat, drink or smoke while working keep away from food or drinks

## 9. Toxicological information

there are no toxic reactions known at intended use.  
inhaling dust can cause irritations, dust contact with the skin can cause irritations

## 10. physical and chemical properties

odour:	odourless
melting point:	app. 2680°C
boiling point:	app. 5500°C
flashpoint:	not flammable
density:	appr. 3 g/cm <sup>3</sup>
solubility in water:	insoluble in water
this product is not flammable or explosive	

## 11. stability and reactivity

avoidable terms: n.a.

avoidable substances: n.a.

hazardous corrosion products: n.a.

## 12. ecological hazards

no environmental hazard at intended use and properly disposal

## 13. Disposal considerations

Take to an approved landfill or waste incineration plant, under conditions approved by the local authorities.

Take empty and contaminated containers to an approved landfill or waste incineration plant, under conditions approved by the local authorities.

## 14. transport information

product does not classify as hazardous materials

## 15. regulatory information

The usual precaution for the use of chemical substances should be taken.

identification according to EC rules

according to EC rules the product is not subject to declaration

national regulations: water hazard class n.a.  
 not subject to declaration according to ordinance on hazardous substances

The above mentioned data correspond to our present state of knowledge and experience. The safety data sheet serves as description of the products in regard to necessary safety measures. The indications do not have the meaning of guarantees on properties.

## Physical and Chemical Properties

	Upcera Zir-Blank	Requirements for ISO 13356:1997
Bending strength	1200MPa	≥500MPa
Sintering density	6.06g/cm <sup>3</sup>	≥6.0 g/cm <sup>3</sup>
Vicker's hardness	12.8GPa	N/A
Average grain size	0.5μm	≤0.6μm
Chemical solubility	10μg/cm <sup>2</sup>	100μg/cm <sup>2</sup> (ISO6872)
Radioactivity	0.1Bq/g	1.0 Bq/g (ISO6872)

## Test Report

	Tests performed	Standard requirements	Test results	Complied with standard
Biological properties	Cytotoxicity test	Cytotoxicity should be grade 0	The grade of the cytotoxicity is 0, the tested sample has no cytotoxicity	Complied

Biological properties	Short term systemic toxicity test –oral route	The sample should be no toxicity	During the experimental period, no significant differences were found between the test group and the control group. This indicated that the tested sample has no systemic toxicity	Complied
	Sensitization test (Delayed-type hypersensitivity test)	The sample should have no sensitization	The scales of reactions of 10 animals were “0”, less than “1”. This indicated that the tested sample has no sensitization	Complied
	Intracutaneous reactivity test	No intracutaneous reactivity	The primary irritation index of the tested product by sodium chloride extraction is “0”, by cotton seed oil extraction is 0.17, no irritation	Complied