

:: I - PRODUCT IDENTIFICATION ::

Product Name: Electrochemical leadfree Oxygen Sensor, galvanic fuel cell type.
All medical FiO₂ cells with weak basic electrolyte.

Manufacturer: IT Dr. Gambert GmbH

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:: II - HAZARDOUS INGREDIENTS/COMPOSITION ::

Material or Component	C.A.S. #	Quantity	OSHA PEL	ACGIH
Tin (Sn)	7440-31-5	5-20 gms	n.a.	n.a.
Cesium carbonate (Cs ₂ CO ₃)	534-17-8	<0,5g	n.a.	n.a.
Cesium hydrogen carbonate (CsHCO ₃)	29703-01-3	< 0.2 g	n.a.	n.a.
Sodium thiosulfate penta- hydrate (Na ₂ S ₂ O ₃)	10102-17-7	<10mg	n.a.	n.a.

:: III - HEALTH HAZARD DATA ::

Routes of Entry: **Inhalation:** Highly unlikely.
Ingestion: May be harmful if swallowed
Skin: May be harmful if absorbed through skin. Cause of skin irritation
Eyes: The electrolyte (cesium carbonate) causes irritation in eyes.

Acute Effects: The electrolyte is harmful if swallowed, inhaled or absorbed through the skin.

Chronic Effects: Chronic exposure from the tin contained in this product is extremely unlikely.

Signs and Symptoms of Exposure: n.a.

Carcinogenicity: n.a.

NTP: n.a.

:: IV - EMERGENCY FIRST AID PROCEDURES ::

In case of contact with the skin or eyes, immediately flush with plenty of water for at least 15 minutes and remove all contaminated clothing. Get medical attention immediately.

If ingested, give large amounts of water and DO NOT INDUCE VOMITING. Obtain medical attention immediately.

If inhaled, remove to fresh air and obtain medical attention immediately.

:: V - FIRE AND EXPLOSION HAZARD DATA ::

Flash Point: n.a.	Flammable Limits: n.a.	LEL: n.a.	UEL: n.a.
Extinguishing Media:	Use extinguishing media appropriate to surrounding fire conditions. No specific agents recommended.		
Special Fire Fighting Equipment:	Wear NIOSH/OSHA approved self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.		
Unusual Fire and Explosion Hazards:	n.a.		
Fire Protection Classification:	B1 (DIN 4102)		

:: VI - CLEANUP PROCEDURES ::

Wipe down the area several times with a wet paper towel. Use a fresh towel each time.

:: VII - PRECAUTIONS FOR SAFE HANDLING AND USE ::

Note: The oxygen sensors are sealed and under normal circumstances the contents of the sensors do not present a health hazard. The following information is given as a guide in the event that a cell leaks.

Protective Measures During Cell Replacement:	Before installing the sensor cell, check the sensor cell for leakage. If the sensor cell leaks, do not use it. If there is liquid around the cell while in the instrument, wear eye and hand protection.
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:: VIII- EXPOSURE CONTROLS/PERSONAL PROTECTION ::

Eye Protection:	Chemical splash goggles
Hand Protection:	Rubber gloves
Ventilation:	n.a.

:: IX - PHYSICAL/CHEMICAL CHARACTERISTICS ::

Material or Component	Boiling Point (°C)	Specific Gravity	Vapor Pressure	Melting Point (°C)	Density	Evap. Rate	Solubility in Water	Odor/Appearance Physical State
Tin	2270	7.31	n.a.	231.9	7.31	n.a.	Insoluble	Solid, gray, odourless
Cesium carbonate	n.a.	4.072	n.a.	610	4.072	n.a.	Complete	White, no odour
Caesium Hydrogencarbonate	n.a.	n.a.	n.a.	175	n.a.	n.a.	Complete	White, no odour
Sodium thiosulfate	n.a.	n.a.	n.a.	48	n.a.	n.a.	700 g/l	White, no odour

:: X - STABILITY AND REACTIVITY ::

Stability:	Stable
Incompatibilities:	Halogenes, Carbontetrachloride. Strong oxidizing agents, strong acids. Avoid contact with acids and hydrogen peroxide > 52%.
Hazardous Decomposition:	Hazardous decomposition products formed under fire conditions are producing Carbonoxide.
Hazardous Polymerization	Will not occur.

:: XI - TOXICOLOGICAL INFORMATION ::

Toxicity to Animals:	Acute oral toxicity (LD50): 7698.9 mg/kg (Rat) (Calculated value for the Cs ₂ CO ₃ solution.)
Mutagenicity:	n.a.

:: XII - ECOLOGICAL INFORMATION ::

Ecotoxicity:	n.a.
Environmental Fate:	n.a.

:: XIII - DISPOSAL CONSIDERATIONS ::

Waste must be disposed of in accordance with Federal, State and Local environmental control regulations.

:: XIV - TRANSPORT INFORMATION ::

DOT:	Not a DOT controlled material (United States).
IATA:	Not a dangerous good.

:: XV - REGULATORY INFORMATION ::

Federal and State Regulations: TSCA 8(b) inventory: Cesium carbonate

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC): R38- Irritating to skin. R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard:	2
Fire Hazard	0
Reactivity:	0
Personal Protection:	E

:: XVI – OTHER INFORMATION ::

All chemicals may pose unknown hazards and should be used with caution. While the information contained in this Material Safety Data Sheet is believed to be correct and is offered for your information, consideration and investigation, IT Dr. Gambert GmbH assumes no responsibility for the completeness or accuracy of the information contained herein.

:: ADDENIUM – MATERIALS IN CONTACT WITH MEDIA ::

Sensor Component	Abbreviation	Description	Contains Phthalates	Toxicity	Flammability
Gas Adapter	ABS Toyolac 700	CAS No. 97048-04-9	none	none	flame retardant
Outer Membrane	PTFE Hydrophobic Membrane	Polytetrafluorethylene CAS No. 9002-84-0	none	none	not flammable
Clamping Ring	PPS Ryton R4XT	Polyphenylene Sulfide CAS No. 26125-40-6	none	none	not flammable
Clamping Mesh	Stainless Steel WN 1.4310	Steel X10CrNi18-8 AISI 301	none	none	not flammable
Sealing Ring (O-Ring)	FKM 75	Fluoroelastomer CAS No. 56662-77-2	none	none	flame retardant
Sensor Core Housing	PVC Begra 701	CAS No. 9002-86-2	none	none	flame retardant