

MATERIAL SAFETY DATA SHEET

Part of Thermo Fisher Scientific

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name:	Nickel microspheres, Nickel particles		
Product Content:	Nickel microspheres, Nickel particles		
Company Identification	Microgenics Corporation	Company Phone Number	(510) 979-5000
Office Address	46360 Fremont Blvd.	Emergency Phone Number	(510) 979-5000
City, State, Zip Code	Fremont, CA 94538	CHEMTREC Phone Number, US	(800) 424-9300
Country	USA	CHEMTREC Phone Number, Europe	(202) 483-7616

SECTION 2 - HAZARD IDENTIFICATION

CAUTION! Possible carcinogen. May cause allergic skin reaction. May cause lung irritation and asthma-like reactions

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Component: Name	CAS Number:	Percentage:	EINECS/ELINCS
Nickel	7440-02-0	100	231-111-4

SECTION 4 - FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water for at least 15 minutes. Get medical attention if irritation develops and persists
 SKIN CONTACT: In case of contact remove clothes, wash area with soap and flush with plenty of water. Get medical attention if irritation develops and persists.
 INHALATION: Remove to fresh air. Flush thoroughly with water for at least 15 minutes. If breathing is difficult, give oxygen, seek medical advice
 INGESTION: Give one to two glasses of water and seek medical advice

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES: Flammable as dust. Toxic fumes may be released in a fire. Finely dispersed particles form explosive mixtures in air. NFPA/HMIS Rating (estimated): Health: 2; Flammability: 4; Instability: 1
 PROTECTION FOR FIREFIGHTERS: Water in large amounts, foam, dry chemical, soda ash, lime dry sand. NO carbon

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Areas covered with spilled particles may be slippery. If material is spilled or released, cordon off the area. Collect material by wiping the spill area with a damp paper towel or disposable wipe, and place materials into an appropriate container. Alternatively, use a vacuum cleaner equipped with a high efficiency particulate air (HEPA) filter. Avoid inhaling fine particle dust. Discard collected material in containers suitable for proper disposal

SECTION 7 - HANDLING AND STORAGE

Keep tightly sealed to prevent contamination; store at room temperature in a dry area. Avoid damaging or puncturing containers. When creating aerosols of fine particles use minimal and directional (away from the user) airflow

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION

Occupational Exposure Limits
 Chemical Name – Nickel Particles

OSHA PEL TWA / 8 hour	Cal/OSHA EPLTWA/8 hr	ACGIH TLV TWA / 8 hours	AIHA	NIOSH LDH/TWA
1.0 mg/m ³	1.0 mg/m ³	1.5 mg/m ³ : A5 - Not Suspected as a Human Carcinogen	Not listed	0.015 mg/m ³ 10 mg/m ³ IDLH

EXPOSURE GUIDELINES: Anticipated To Be A Human Carcinogen (NTP). A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Safety glasses with side shields are suggested
 ENGINEERING CONTROLS: Use minimal and directional (away from the user) airflow to minimize worker exposure
 SKIN PROTECTION: Wear appropriate protective gloves to prevent skin exposure. If material contacts skin, may cause an allergic skin reaction
 RESPIRATORY PROTECTION: Respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149. NIOSH approved full face shield with high efficiency particulate filter
 GENERAL HYGIENE CONSIDERATIONS: Wear appropriate protective clothing to prevent skin exposure
 SYSTEMIC: Acute: Inhalation may cause irritation to the nose and respiratory tract and asthma-like reactions.
 Chronic: Inhalation may cause irritation to the nose and respiratory tract and asthma-like reactions

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT:	2732°C	SOLUBILITY IN WATER:	Insoluble	FLASH POINT:	N/A
MELTING POINT:	1455°C	EVAPORATION RATE:	N/A	FLAMMABLE PROPERTIES:	N/A
PHYSICAL STATE:	solid	VAPOR PRESSURE:	1 mmHg @t 1810°C	AUTO IGNITION TEMP:	N/A
DENSITY:	8.9 g/cm ³ at 25°C	pH: N/A Kow:	N/A		
DECOMPOSITION:	N/A	MOLECULAR WEIGHT	58.7	SPECIFIC GRAVITY:	8.9
APPEARANCE, COLOR, ODOR:	Silver-white powder, no odor				

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: Stable at room temperature in closed containers under normal storage and handling conditions
 INCOMPATIBILITY: Strong oxidizer. Separate from strong acids
 HAZARDOUS DECOMPOSITION PRODUCTS: Not known
 HAZARDOUS POLYMERIZATION: Will not occur

SECTION 11 - TOXICOLOGICAL INFORMATION

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY: Not considered to be a reproductive or developmental toxicant
 CARCINOGENICITY: NTP - Anticipated being Human Carcinogens. For more information refer to Section 2. Hazards id.

ACUTE TOXICITY DATA

Oral Rat LD50 >9000 mg/kg	Intraperitoneal rat LD50= 250 mg/kg	Intratracheal rat LDLo= 12 mg/kg
Intravenous mouse LDLo= 50 mg/kg	Subcutaneous cat LDLo= 12500 ug/kg	Intraperitoneal rabbit LDLo= 7 mg/kg
Subcutaneous rabbit LDLo= 7500 ug/kg	Oral guinea pig LDLo= 5 mg/kg	Oral rat LDLo= 5 gm/kg

MULTIPLE DOSE TOXICITY DATA

Oral rat TDLo= 500 mg/kg/5D-1	Intravenous rat TDLo= 50 mg/kg/5D-1	Oral mouse TDLo= 500 mg/kg/5D-1
Inhalation rat TCLo= 100 ug/m3/24H/17W-C	Inhalation rabbit TCLo= 1700 ug/m3/6H/5W-1	Inhalation rabbit TCLo= 130 ug/m3/6H/35W-1
Intravenous mouse TDLo= 100 mg/kg/5D-1	Intravenous rabbit TDLo=50 mg/kg/5D-1	
Inhalation rabbit TCLo= 1 mg/m3/6H/26W-1		

TUMORIGENIC DATA

Subcutaneous rat TDLo= 3000 mg/kg/6W-1	Intramuscular rat TDLo=56 mg/kg	Intraleural rat TDLo=100 mg/kg/21W-1
Parenteral rat TDLo=40 mg/kg/52W-1	Implant rat TDLo=250 mg/kg	Intramuscular mouse TDLo=200 mg/kg
Implant rabbit TDLo=165 mg/kg/2Y-1	Inhalation guinea pig TCLo=15 mg/m3/91W-1	Intramuscular hamster TDLo=200 mg/kg/21W-1
Intramuscular rat TD=58 mg/kg	Implant rat TD=23 mg/kg	Intramuscular rat TD=125 mg/kg/13W-1
Intramuscular mouse TD=800 mg/kg/13W-1	Intramuscular rat TD=90 mg/kg/18W-1	Intramuscular rat TD=889 ug/kg
Intraleural rat TD=1250 mg/kg/17W-1	Intraleural rat TD=125 mg/kg/21W-1	Intramuscular rat TD=200 mg/kg/21W-1

REPRODUCTIVE DATA

Oral rat TDLo=158 mg/kg multigenerations hamster embryo Morphological transformation= 5 umol/L hamster Kidney Morphological transformation= 400 mg/L

NOES Hazard Codes CAS#7440-02-0: NOHS=50420, NOES=X5096, X5918, X5986, X8294

RTECS CAS#7440-02-0 =QR5950000

MUTATION DATA

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY 72 Hr EC50 freshwater algae (4 species): 0.1 mg/L; 96 Hr EC50 water flea: 510 µg/L
 PERSISTENCE/DEGRADATION *No information found*
 BIOACCUMULATION/ACCUMULATION *No information found*
 MOBILITY IN ENVIRONMENTAL MEDIA not soluble in water
 ENVIRONMENTAL Nickel metal is persistent in the environment and acutely toxic to aquatic organisms.
 OTHER ADVERSE EFFECTS Users should check with local authorities and regulations regarding the criterion for nickel allowed in wastewater discharges

SECTION 13 - DISPOSAL CONSIDERATIONS

Dispose of any waste residues according to prescribed federal, state, and local guidelines (e.g., to an appropriately permitted chemical waste incinerator).
 None of the components are on RCRA P& RCRA U Series Wastes list. EWC waste code 18 01 05 discard as chemicals and medicines
 Other Information: According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used

SECTION 14 - TRANSPORTATION INFORMATION

HAZARD CLASS: US DOT - 100 lb RQ >100 µm (0.004 inches); 45.4 kg RQ >100 µm (0.004 inches)
 Not classified per TDG, UNECE, ADR, ADN, IATA, ICAO, RID, IMDG/IMO, OTIF, Mexico

SECTION 15 - REGULATORY INFORMATION

CAS# 7440-02-0

TSCA 8(b)	CWA	EPA	CCL	SWCA	SARA 302	SARA 313	CERCLA	RCRA 261.33	TSCA 8(d)	TSCA 12(b)	FIFRA	CWC	SARA 311/312	EPICRA	CAA-SNAP	FDA	USDA
yes	yes	yes	yes	yes	no	yes	yes	yes	no	no	no	no	no	no	no	yes	no

Not subject to ITAR and EAR regulations

US State OEL-TWA: - CAS# 14808-60-7 Alaska, Hawaii, Idaho, Indiana, Michigan, Minnesota, New York, North Carolina, Oregon, Tennessee, Vermont, Washington =1 mg/m³

New Jersey, Pennsylvania – RTK list

California - Prop 65 THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER

Title 8 CCR, Title 22 CCR, ATHS - yes; Ozone Depleting Compounds, Precursor Chemicals, SCAQMD - no

Advisory Agencies/Africa/ Asia-Pacific/Europe Non-EU /EU Member Countries/Latin America and Caribbean/ Middle East/Government Inventory Lists

CAS#14808-60-7

IARC	WHO	IPCS	NTP	OECD	AICS	CHINA	PICC	New Zealand	Korea	ENCS	Germany VwVws	EC	EINECS
yes	yes	no	yes	yes	yes	yes	yes	yes	KE-25818	no	yes	no	231-111-4

OEL-TWA: Egypt 1.5 mg/m³, Lesotho 0.1 mg/m³, South Africa 0.05 mg/m³, Australia 1 mg/m³, China 1 mg/m³, Hong Kong 1.5 mg/m³, Indonesia 1 mg/m³, Japan 1 mg/m³, Korea 1 mg/m³, Malaysia 1.5 mg/m³, New Zealand 1 mg/m³, Philippines 1 mg/m³, Taiwan 1 mg/m³, Vietnam 0.05 mg/m³, Iceland 0.05 mg/m³, Norway 0.05 mg/m³, Belgium 1 mg/m³, Bulgaria 0.05 mg/m³, Czech Republic 0.5 mg/m³, Denmark 0.05 mg/m³, Estonia 0.5 mg/m³, Finland 1 mg/m³, Greece 1 mg/m³, Hungary 0.1 mg/m³, Ireland 0.5 mg/m³, Latvia 0.05 mg/m³, Portugal 1.5 mg/m³ TWA, Romania 0.10 mg/m³, Slovak Republic 0.5 mg/m³, Spain 1 mg/m³, United Kingdom 0.5 mg/m³, Argentina 1.5 mg/m³, Chile 0.8 mg/m³, Colombia 1.5 mg/m³, Mexico 1 mg/m³, Peru 1.5 mg/m³, Venezuela 1.5 mg/m³, GCC 0.05 mg/m³, Israel 1.5 mg/m³

Canada Federal/Provincial Government - CAS#14808-60-7

OEL-TWA: Alberta 1.5 mg/m³, British Columbia 0.05 mg/m³, Manitoba 1.5 mg/m³, New Brunswick 1 mg/m³, New Foundland 1.5 mg/m³, Northwest Territories 1 mg/m³, Nova Scotia 1.5 mg/m³, Nunavut 1 mg/m³, Ontario 1 mg/m³, Quebec 1 mg/m³, Saskatchewan 1.5 mg/m³, Yukon 1 mg/m³

OEL-STEL: Northwest Territories 2 mg/m³, Nunavut 2 mg/m³, Saskatchewan 3 mg/m³, Yukon 3 mg/m³

SECTION 15 - REGULATORY INFORMATION – continued

European Union Directives CAS# 7440-02-0

Canada Federal/Provincial Government CAS# 7440-02-0

793/93/EEC	1907/2006 – REACH	CEPA	NPRI	Health Canada	DSL	NDSL	DWQ	WHMIS
no	yes	Yes Part 1, Group 1	no	no	yes	no	no	0.1% D2A, D2B; B6, D2A

WHMIS: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

SECTION 16 - OTHER INFORMATION

Revision: 05

Date prepared: October 1, 2008

ABBREVIATIONS

EU: European Union

DOT: Department of Transportation

NIOSH: National Institute for Occupational Safety and Health

ACGIH: American Conference of Governmental Industrial Hygienists

IATA: International Air Transport Association

NTP: National Toxicology Program

OSHA: Occupational Safety and Health Administration

IARC: International Agency for Research on Cancer

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End of MSDS