nanoComposix

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SAFETY DATA SHEET

Preparation Date: 02/01/2018
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SECTION 1: Identification

NanoXact™ Organic Gold Nanoparticles (AUYH)

Manufacturer: nanoComposix, Inc.
4878 Ronson CT STE K
San Diego, CA 92111-1806

NANOCOMPOSIX CUSTOMER SERVICE: (858) 565-4227
CHEMTREC (EMERGENCY ONLY): (800) 424-9300
POISON CENTER: (800) 562-8236

Relevant Identified Uses: Laboratory chemicals, Manufacture substances

SECTION 2: Hazards Identification

EMERGENCY OVERVIEW:

OSHA Hazards: GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225.

Eye irritation (Category 2A), H319

Skin irritation (Category 2), H315

Reproductive toxicity (Category 2), H361

Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

Specific target organ toxicity - repeated exposure (Category 2), H373

Aspiration hazard (Category 1), H304 Acute aquatic toxicity (Category 2), H401

Pictogram

Signal word Danger

HMIS CLASSIFICATION

Health Hazard:	2
Flammability:	3
Physical Hazards:	0

NFPA RATING

Health Hazard:	2
Fire:	3
Reactivity Hazard:	0

APPEARANCE: Red, red/brown.

EYE CONTACT: May cause eye irritation. Prolonged exposure may cause eye damage.

SKIN CONTACT: May be harmful if absorbed through skin. May cause skin irritation.

INHALATION: May be harmful if inhaled. May cause respiratory tract irritation.

INGESTION: May be harmful if ingested.

ACUTE HEALTH EFFECTS: May be irritating to skin, eyes and digestive tract.

CHRONIC HEALTH EFFECTS: Repeated and prolonged exposures have not been studied.

AGGRAVATION of PRE-EXISTING CONDITIONS: Persons with preexisting conditions may be more susceptible.

SECTION 3: Composition and Information on Ingredients

CHEMICAL NAME: Colloidal gold nanoparticles

CAS REGISTRY NUMBER: 7440-57-5 (gold)

FORMULA: Au

EINECS NUMBER: NA (See components)

CHEMICAL FAMILY: metal

SYNONYM: NanoXact™ Organic Gold, gold nanoparticles, colloidal gold, nano gold, organic gold nanoparticles

INGREDIENTS	CAS #	% by Mass	Hazardous
Gold	7440-57-5	0.1	No
Polystyrene	N/A	Trace	No
Toluene	108-88-3	> 99	Yes

SECTION 4: First Aid Measures

PRIMARY ROUTES OF EXPOSURE: Ingestion, dermal contact.

EYE EXPOSURE: Remove contacts if present. Immediately flush the eyes with water for at least 10-15 minutes. Seek medical attention if irritation persists.

SKIN EXPOSURE: Wash the affected area with soap and water. Remove contaminated clothes if necessary. Seek medical assistance if irritation persists.

INHALATION: If breathed in, move person to fresh air. If not breathing, give artificial respiration.

INGESTION: If the person is conscious, rinse their mouth out with water. Never give anything by mouth to an unconscious person.

MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED: The most important known symptoms and effects are described in section 2 and/or in section 11.

SECTION 5: Fire Fighting Measures

EXTINGUSHING MEDIUM: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self contained breathing apparatus for fire fighting if necessary.

HAZARDOUS COMBUSTION AND DECOMPOSITION PRODUCTS: None.

UNUSUAL FIRE OR EXPLOSION HAZARDS: None.

SECTION 6: Accidental Release Measures

GENERAL PROTECTION: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
See Section 8 for personal protection.

ENVIRONMENTAL PRECAUTIONS: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN UP: Small spills can be swept up or diluted flushed with water to dilute according to local, state, and federal disposal guidelines. Solid surface should be wiped with a detergent-based cleaner to clean any remaining materials.

SECTION 7: Handling and Storage

PRECAUTIONS FOR SAFE HANDLING: Avoid contact with skin, eyes and clothing. Avoid prolonged or repeat exposure.

RECOMMENDED STORAGE: Closed container stored at 2-8°C. DO NOT FREEZE.
Storage class (TRGS 510): Combustible Liquids

SECTION 8: Exposure Controls and Personal Protection

CONTROL PARAMETERS:

Components	CAS-No.	Value	Control parameters	Basis
Toluene	108.88-3	TWA	100 ppm 375 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		STEL	150 ppm 560 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
	Remarks	Z37.12-1967		
		CEIL	300 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
	Remarks	Z37.12-1967		
		Peak	500 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
	Remarks	Z37.12-1967		
		TWA	20 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Visual impairment Female reproductive Pregnancy loss 2015 Adoption Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm 375 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	150 ppm 560 mg/m3	USA. NIOSH Recommended Exposure Limits

Biological occupational exposure limits

Components	CAS-No.	Parameters	Value	Biological specimen	Basis
Toluene	108-88-3	Toluene	0.0200 mg/l	In blood	ACGIH - Biological Exposure Indices (BEI)
	Remarks	Prior to last shift of workweek			
		Toluene	0.0300 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			
		o-cresol	0.3000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

EXPOSURE CONTROLS:

APPROPRIATE ENGINEERING CONTROLS: General industrial hygiene practice.

PERSONAL PROTECTIVE EQUIPMENT:

EYE PROTECTION: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

SKIN PROTECTION: Wear protective clothing and gloves.

VENTILIATION: Recommended to use in a fume hood or well-ventilated area to avoid inhalation.

RESPIRATOR: Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

ADDITIONAL PROTECTION: No additional protection required.

SECTION 9: Physical and Chemical Properties

FORM: Liquid, individual particles 5-150 nm total diameter.

APPEARANCE/COLOR: Red, red/brown.

UPPER/LOWER FLAMMABILITY LIMIT: No data available.

ODOR: No data available.

VAPOR PRESSURE: No data available.

ODOR THRESHOLD: No data available.

VAPOR DENSITY: No data available

pH: No data available.

RELATIVE DENSITY: 0.865 g/cm^3 at 25 °C (77 °F)-Toluene

MELTING/FREEZING POINT (°C): No data available.

SOLUBILITY: No data available.

BOILING POINT (°C): 110.0 - 110.0 °C (230 - 232 °F)-Toluene

FLASH POINT (°C): 4.0 °C (39.2 °F)-closed cup - Toluene

EVAPORATION RATE: No data available.

FLAMMABILITY:	No data available.
PARTITION COEFFICIENT:	No data available.
AUTO-IGNITION TEMPERATURE (°C):	No data available.
DECOMPOSITION TEMPERATURE (°C):	No data available.
MOLECULAR WEIGHT:	No data available.
VISCOSITY:	No data available.
SPECIFIC GRAVITY:	No data available.

SECTION 10: Stability and Reactivity

REACTIVITY: No data available.

CHEMICAL STABILITY: Stable under recommended storage conditions. DO NOT FREEZE.

OTHER:

POSSIBILITY OF HAZARDOUS REACTIONS: Vapors may form explosive mixture with air.

CONDITIONS TO AVOID: Heat, flames and sparks.

MATERIALS TO AVOID: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Hazardous decomposition products may be formed under fire conditions –Carbon oxides –See section 5 the event of fire. Nature of decomposition products not known.

SECTION 11: Toxicological Information

ACUTE TOXICITY

Oral LD50:	Rat - > 5,580 mg/kg.
Inhalation LC50:	Rat - 4 h - 12,500 - 28,800 mg/m3.
Dermal LD50:	Rabbit - 12,196 mg/kg.
Other information on acute toxicity:	No data available.
SKIN CORROSION/IRRITATION:	Skin - Rabbit Result: Skin irritation - 24 h.
SERIOUS EYE DAMAGE/IRRITATION	Eyes - Rabbit Result: No eye irritation.
	(OECD Test Guideline 405)
RESPIRATORY OR SKIN SENSITIZATION	No data available.
GERM CELL MUTAGENICITY	Rat: Liver, DNA damage.

CARCINOGENICITY –

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

REPRODUCTIVE TOXICITY:

Damage to fetus possible

Suspected human reproductive toxicant

Reproductive toxicity - Rat - Inhalation

Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count).

Experiments have shown reproductive toxicity effects in male and female laboratory animals.

Developmental Toxicity - Rat - Oral

Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

TERATOGENICITY: No data available

SPECIFIC TARGET ORGAN TOXICITY No data available

ASPIRATION HAZARD No data available

POTENTIAL HEALTH EFFECTS

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion: May be harmful if swallowed.

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: May cause eye irritation.

SIGNS AND SYMPTOMS OF EXPOSURE: Exposure to gold compounds can cause contact dermatitis. The toxicological properties have not been thoroughly investigated. The data supplied are for closely related compounds. No data available.

SYNERGISTIC EFFECTS: No data available.

ADDITIONAL INFORMATION: RTECS: XS5250000-(Toluene)

Lung irritation, chest pain, pulmonary edema, Inhalation studies on toluene have demonstrated the development of inflammatory and ulcerous lesions of the penis, prepuce, and scrotum in animals., Central nervous system

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological Information

AQUATIC/TERRESTRIAL ORGANISM TOXICITY:

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 7.63 mg/l - 96 h
	NOEC - Pimephales promelas (fathead minnow) - 5.44 mg/l - 7 d
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 8.00 mg/l - 24 h
	Immobilization EC50 - Daphnia magna (Water flea) - 6 mg/l – 48h
Toxicity to algae	EC50 - Chlorella vulgaris (Fresh water algae) - 245.00 mg/l - 24 h
	EC50 - Pseudokirchneriella subcapitata (green algae) - 10.00 mg/l - 24 h

PERSISTANCE AND DEGRADABILITY:

Biodegradability Result: - Readily biodegradable.

BIOACCUMULATIVE POTENTIAL:

Bioaccumulation Leuciscus idus (Golden orfe) - 3 d - 0.05 mg/l Bioconcentration factor (BCF): 90.

MOBILITY IN SOIL: No data available.

PBT AND vPvB ASSESSMENT: No data available.

OTHER ADVERSE EFFECTS:

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

SECTION 13: Disposal Considerations

DISPOSAL: Dispose of according to local, state and federal regulations. (Refer to Section 8)

SECTION 14: Transportation Information

DOT (US): UN number: 1294 Class: 3 Packing group: II
Proper shipping name: Toluene
Reportable Quantity (RQ):
Poison Inhalation Hazard: No
IMDG: UN number: 1294 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: Toluene
Marine pollutant: No
IATA: UN number: 1294 Class: 3 Packing group: II
Proper shipping name: Toluene
SHIPPING NAME (CFR): Not Available
SHIPPING NAME (IATA): Flammable Liquid (Toluene)

SECTION 15: Regulatory Information

OSHA HAZARDS: Flammable liquids (Category 2), H225-(Toluene)
DSL STATUS: All components of this product are on the Canadian DSL list
TSCA 8(b) inventory: Gold - CAS# 7440-57-5
SARA 302 COMPONENTS: No chemicals in this material are subject the reporting requirements of SARA Section 302.
SARA 313 COMPONENTS: No chemicals in this material are subject to the reporting requirements of SARA Section 313.
SARA 311/312 HAZARDS: No SARA Hazards.
MA RIGHT TO KNOW COMPONENTS:

	CAS #	% by mass	Hazardous
Gold	7440-57-5	0.1	No
Polystyrene	NA	Trace	No
Toluene	108-88-3	> 99	Yes

PA RIGHT TO KNOW COMPONENTS:

INGREDIENTS	CAS #	% by Mass	Hazardous
Gold	7440-57-5	0.1	No
Polystyrene	NA	Trace	No
Toluene	108-88-3	> 99	Yes

NJ RIGHT TO NOW COMPONENTS

INGREDIENTS	CAS #	% by Mass	Hazardous

Gold	7440-57-5	0.1	No
Polystyrene	NA	Trace	No
Toluene	108-88-3	> 99	Yes

CA PROP 65 COMPONENTS: WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Toluene

SECTION 16 Other Information

DISCLAIMER: The information herein is believed to be accurate and reliable as of the date compiled. However, nanoComposix, Inc. makes no representation, warranty, or guarantee of any kind with respect to the information contained in this document or any use of the product based on this information.