Nickel Oxide Safety Data Sheet

1. PRODUCTS AND COMPANY IDENTIFICATION

COMPANY NAME	: Zenith Chemical Corporation
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2. HAZARDS IDENTIFICATION

GHS Classification

Physical and chemical properties

Gunpowder class	: Inapplicable
Flammable gas	: Inapplicable
Flammable aerosol	: Inapplicable
Oxidizing gas	: Inapplicable
Flammable liquid	: Inapplicable
Flammable solid	: Out of category
Self-reactive chemical article	: Inapplicable
Self-reactive liquid	: Inapplicable
Self-reactive solid	: Out of category
Self-heating substance	: Out of category
Substance which, in contact with water, emits flammable chemical article	: Out of category
Oxidizing liquid	: Inapplicable
Oxidizing solid	: Not applicable
Organic peroxide	: Inapplicable
Corrosive to metal materials	: Not applicable

Person health venomousness

Acute toxicity (mouth)	: Out of category
Acute toxicity (skin)	: Not applicable
Acute toxicity (inhalation, gas)	: Inapplicable
Acute toxicity (inhalation, steam)	: Not applicable
Acute toxicity (inhalation, dust)	: Not applicable
Acute toxicity (inhalation, mist)	: Out of category
Skin corrosion	: Not applicable
Serious eye damage	: Not applicable
Respiratory sensitizer	: Category 1
Skin sensitizer	: Category 1
Mutation of original generative cell	: Out of category
Carcinogenicity	: Category 1A
Reproduction toxic	: Not applicable
Specific target internal organs・toxic of whole body (single revelation)	: Not applicable

Specific target internal organs・toxic of hole body (repetition revelation)	: Category 1 (inhalation : lungs)
Aspiration Hazard	: Not applicable

Environmental hazardous

Aquatic environment acute hazardous : Out of category

Aquatic environment chronic hazardous : Category 4

Label element, Picture or symbol

Signal word : Danger

Hazard statement
- May cause harmful by inhalation.
- May cause cancer by inhalation.
- May cause allergy, asthma or dyspnea by inhalation.
- Causes damage to lungs through prolonged or repeated inhalation exposure.
- May cause long lasting harmful effects to aquatic life.

Precautionary statement

【Safety measures】
- Never drink or smoke when use this material.
- Flush skin with plenty of water.
- Never dispose the material into the environments.
- Avoid to inhale dust, fume, gas, mist, vapor, spray.
- Avoid release to the environment.
- Use personal protective equipment as required and use ventilation system to avoid exposure.
- Wear protective gloves and protective clothing.
- Contaminated work clothing should not be allowed out of the workplace.

【First aid】
- If exposed or concerned, get medical advice/attention.
- If breathe dust or fume, get medical advice/attention.
- If breathe dust or fume, move the place to get fresh air.
- Get medical advice/attention ,if you feel unwell.
- Wash contaminated clothes before reuse.
- If skin irritation or concerned, get medical advice/ attention.
- Get medical advice/attention, if you feel unwell when swallow it.
- To recover the spilled material.

【Safekeeping】
- Should keep materials in rocked warehouse.

【Disposal】
- Dispose in accordance with applicable federal, state, and local regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

TRADE NAME	: Nickel Oxide
SIMPLE OR MIXED SUBSTANCE	: Simple Substance
INGREDIENT CHEMICAL NAME	: Nickel Oxide
Purity(%)	: NiO 100%
CHEMICAL OR STRUCTURAL FORMULA	: NiO (Molecular Weight 74.71)
CAS No.	: 1313-99-1
EINECS No.	2152157
PRTR	: First Group Ni 76.5~78.5wt% O2 balance
LABOR SAFETY AND HYGIENE Substances subject to notification	: Corresponding, Ni 76.5~78.5wt% O2 balance
LABOR SAFETY AND HYGIENE LAW Substances display	: Corresponding Specific Chemical Substances second category, Ni 77.0~78.5wt% , O2 balance

4. FIRST-AID MEASURES

Eye Contact	・No report for acute Ophthalmopathy. Flush eyes with plenty water.
Skin Contact	・Flush skin with plenty of water and soap.
Inhalation	・Some stimulation on the upper part respiratory tract. When the person feel pain at throat or lung, should be placed in the fresh air area. Depending upon the condition, the person should be subjected to medical treatments.
Ingestion	・If the preson swallow it large quantity, let the person rinse the mouth and vomit by inserting finger into the throat and immediately be subjected to medical treatments.

5. FIRE FIGHTING MEASURES

This product is not flammable.

6. ACCIDENTAL RELEASE MEASURES

Caution for the human body and a tool for protection, emergency action	・ Use personal protective equipment as required. (see No.8) Avoid generation of dusty atmosphere. Contaminated work clothing should not be allowed out of the workplace.
Caution for environment	・Avoid flushing with water as possible. Do not make an influence for environment.
Collection and Neutralization	・Recover into an empty container by sweeping with a bloom, scooping with shovel or using a vacuum cleaner.
Confine and purification	・Block up the leak point and stop a leak.
The preventive measures against second disaster	・Avoid it to flow into drainage.

7. HANDLING AND STRAGE

Handling ・Wear dust masks. Install local ventilation equipment where dusting or fuming takes place.

Storage ・Store in normal warehouse (cool and dry).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THRESHOLD LIMIT VALUE ;

Management density	: For those of powdered 0.1 mg/ m^3 (as Ni)
ACGIH TWA(2009)	: 0.2 mg/ m^3 (as Ni, insoluble compound)
Installation	: Local Ventilation equipment is needed.
Protection gears	: Respiratory dust mask is needed.
Protection glasses	: Wearing is preferable
Protection groves	: Wearing is preferable
Protection clothes	: Wearing is preferable
Hygiene measure	: Wash hands, and face thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	: Black fine powder, odorless
SMELL	: Odorless
MELTING POINT	: 1955℃, HSDB(2006)
BOILING POINT	: >2000℃, IUCLID(2000)
SPECIFIC GRAVITY	: 6.72g/ cm^3, Lide (84th, 2003)
SOLUBILITY	: Insoluble in water

10. STABILITY AND REACTIVITY

Flammability	: Non-flammable
Stability, Reactivity	: Soluble in acid or ammonium salt solution.

11. TOXICOLOGICAL INFORMATION

Acute toxicity (mouth)	: Out of category – LD50 Oral Rat >5,000mg/kg (ECETOC TR33(1989))
Acute toxicity (skin)	: No information available
Inhalation, gas	: Inapplicable, This is a solid in the definition of the GHS.
Inhalation, steam	: No information available
Inhalation, dust	: No information available
Inhalation, mist	: Out of category, This is a solid in the definition of the GHS.
Skin corrosion	: No information available
Serious eye damage	: No information available

Respiratory sensitizer	: Category 1, Sensitizing substance airway (Group 2), are classified as respiratory sensitizers in DFG ((2007) MAK / BAT No.43) in the (2011) recommendation, such as allowable concentration of the Japan Society for Occupational Health as nickel.
Skin sensitizer	: Category 1, R43 is a classification EU, skin sensitizer (group 1), skin sensitization DFG ((2007) MAK / BAT No.43) in (2011) recommendation of such allowable concentration of the Japan Society for Occupational Health as nickel
Mutation of original generative cell	: [(Access on January, 2009) NTP DB], oral or mice and rats negative (mutagenicity tests in vivo somatic cell) micronucleus test using peripheral blood, bone marrow and inhalation exposure in mice we have not classified and based on the results of the negative [(2005) ATSDR] the micronucleus test by intraperitoneal administration. In addition, the mutagenicity tests in vitro: chromosomal aberration test using [(2005) ATSDR], human peripheral blood lymphocytes positive Ames test and the mutation test using CHO cells [(1991) EHC 108] [NTP DB (Access on January, 2009)] were negative.
Carcinogenicity	: Category 1A, Society for Industrial recommendation 1 (IARC group 1 [IARC 49 (1990)], ACGIH is A1 (ACGIH (2001)), EU is Carc.Cat.1 [EU-Annex Ⅰ (2009)], Japan Society for Occupational Health (the since it is classified in 2008).
Reproduction toxic	: In a study by inhalation exposure during organogenesis in rats, but has not been seen affected in addition to weight loss of offspring at doses that are acceptable to the weight loss of parent animals, sexual function of parent animals, that there is no data on the reproductive potential I can not be classified because of insufficient data from.
Specific target internal organs・toxic of whole body (single revelation)	: No information available
Specific target internal organs・toxic of whole body (repetition revelation)	: In addition, as a high probability of death in respiratory disease, reports the Ministry of Health, Labour and Welfare, workers are exposed to concentrations greater than 0.04 mg / m^3 of metallic nickel and nickel oxide in occupational, nickel and nickel refining it has been reported rhinitis, sinusitis, nasal septum perforation, nasal mucosa to dysplasia plating workers (Ministry of Health, Labour and Welfare report certificate: hazard assessment nickel and its

compounds (2009)). Was set to (Respiratory) This Category 1. In the inhalation study of 13 weeks in rats, observed at 0.004 mg Ni / L with inflammatory granulomatous lung, hyperplasia of the mediastinal lymph nodes and bronchial corresponds to one segment of the guidance in animal studies, (ATSDR (2005 study in inhalation exposure for 104 weeks in rats, was seen in the 0.0006 mg / L to squamous metaplasia of amnion, hyperplasia of alveolar fibrosis is equivalent to one segment of the guidance)), (NTP TR -451 (1996)). In addition, the lymphocytes in the lymph node hyperplasia of the lung and bronchial inflammation has been observed at a dose of one segment of guidance even in the 104-week inhalation exposure study in mice (NTP TR-451 (1996)).

Aspiration Hazard : No information available

12. ECOLOGICAL INFORMATION

Aquatic environment acute hazardous : Out of category,
EC50 = 100 mg / L 48 hours crustaceans (Daphnia magna) from others (IUCLID, 2000), the water solubility of the substance insoluble (written hazard assessment (CERI-NITE (preliminary version), does not show toxicity such in 2006) Since it is suggested.

Aquatic environment chronic hazardous : Category 4,
For acute toxicity has not been reported at temperatures up water solubility behavior in water is unknown and metal compounds.

13. DISPORSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options.
State and local disposal regulations may differ from federal disposal regulations.
Dispose of container and unused contents in accordance with federal, state and local requirements.
In case of a small amount of disposal, wash away with sufficient water.

14. TRASPORT INFORMATION

【International regulation】
Marine regulation information : Non-dangerous materials
Aviation regulation information : Non-dangerous materials
【Domestic regulation】
Land regulation information : Non-dangerous materials
Marine regulation information : Non-dangerous materials

Aviation regulation information : Non-dangerous materials

【Special safety measures】

On the occasion of the transportation, load it without damage and no leak from the bags, prevent the collapse of cargo and be careful to revolt bags.

Use rigid containers that are not easily damaged under no-wet condition.

15. REGULATORY INFORMATION

Labor Safety and Hygiene Law : 57 lines low – indication object material.
: Specified chemical substance ordinance on Prevention.
: Specified chemical substance the second.

16. OTHER INFORMATION

【The making & Revision date】

Original 2018/12/01
Revised 2020/08/26

【References cited】

14906 of Chemical article ・ The Chemical Daily Co., Ltd.
GHS Information ・ National Institute of Technology and Evaluation

Amanual addicted to industry ・ Ishiyaku Publishers, Inc.
Permission density (2011) ・ Japan Society for Occupational Health
Value and Biological Exposure Indices for 2009

・ ACGIH Threshold Limit

CHRIP(Chemical Risk Information Plat form) ・ National Institute of Technology and Evaluation (NITE)