SAFETY DATA SHEET
Flue dust, Zinc refining

1. SUBSTANCE AND MANUFACTURER IDENTIFICATION

1.1 PRODUCT IDENTIFIER:		
PRODUCT NAME	Flue dust, Zinc-refining	
PRODUCT CODE	CAS Number: 69012-63-1, EC Number: 273-760-6, Registration Number: 01-2119480405-39-0019	
1.2 COMMON, COMMERCIAL NAME, SYNONYMS:	Zinc Oxidized, Zinc rich flue dust, Zinc-refining.	
1.3 RELEVANT IDENTIFIED USES OF THE SUBSTANCE AND USES ADVISED AGAINST:	Raw material to produce secondary zinc or zinc oxide.	
1.4 SUPPLIER INFORMATION OF SAFETY DATA SHEET:		
MANUFACTURER	A-ESSE S.p.A. Via Conturli, 33 16042 Carasco GE - ITALY Phone company number.: 0039 185 350177 – 8 (from Monday to Wednesday, from 8.00 am, to 6.00 pm) Fax: 0039 185 350863 Handler phone numbers: 0039 348 5831754 (h.24) e-mail: info@a-esse.com - http: //www.a-esse.com	
1.4 EMERGENCY TELEPHONE NUMBERS:	Tel.: 0039 06 49978000	Hospital: Centro Antiveleni Azienda ospedaliera universitaria Policlinico Umberto (Roma) - h.24
	Tel.: 0039 06 3054343	Hospital: Centro Antiveleni Policlinico A. Gemelli (Roma) - h.24
	Tel.: 0039 0382 24444	Hospital: Centro Antiveleni Fondazione S. Maugeri (Pavia) - h.24
	Tel.: 0039 02 66101029	Hospital: Centro Antiveleni Ospedale Niguarda Cà Grande (Milano) - h.24
	Tel.: 0039 800 883300	Hospital: Centro Antiveleni Ospedali Riuniti di Bergamo (Bergamo) - h.24
	Tel.: 0039 055 797819	Hospital: Centro Antiveleni Azienda Ospedaliero Universitaria Careggi (Firenze) - h.24
	Tel.: 0039 081 7472870 Tel.: 0039 081 5453333	Hospital: Centro Antiveleni Azienda ospedaliera A. Cardarelli (Napoli) - h.24
	Tel.: 0039 0881 732326	Hospital: Centro Antiveleni Azienda ospedaliero universitaria (Foggia) - h.24

2. HAZARD IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE:	Classification according to Regulation (EC) n. 1272/2008 (CLP/GHS): Hazard pictogram:  GHS08: health hazard Repr. 1A; H360: May damage fertility or the unborn child. Carc. 2 H351: Suspected of causing cancer. STOT Rep. Exp. 2 H373: May cause damage to organs through prolonged or repeated exposure. Aquatic Chronic 3; H412 - Harmful to aquatic life with long lasting effects.
2.2 LABEL ELEMENT:	Labeling according to Regulation (EC) n. 1272/2008 (CLP/GHS):  GHS08: heated hazard **Signal word:** danger **Hazard statements:** H350: Suspected of causing cancer. H360: May damage fertility or the unborn child. H373: May cause damage to organs through prolonged or repeated exposure. H412: Harmful to aquatic life with long lasting effects. **Precautionary statements:** P270: Do not eat, drink or smoke when using this product. P308+P313: IF exposed or concerned: Get medical advice/attention. P273: Avoid release to the environment.
2.3 OTHER HAZARDS:	
CRITERIA FOR PBT AND vPvB	Substance meets the criteria for PBT according to Regulation (EC) n. 1907/2006, Annex XIII • Not available data Substance meets the criteria for vPvB according to Regulation (EC) n. 1907/2006, Annex XIII: • Not available data

For more detailed information about effects on health and relevant symptoms, see Section 11.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 SUBSTANCE:	Substance
CHEMICAL FORMULATION:	ZnO

COMPONENT NAME:	CAS NUMBER	%	CE NUMBER (EINECS)	CLASSIFICATION
ZINC OXIDE	1314-13-2	> 65	215-222-5	Environment, Attention, H400, H410

Other information: the zinc oxidized contain Lead (Pb < 3%), nickel (Ni < 0.1%) and cadmium (Cd < 0.1%).
The occupancy exposure limits are listed in Section 8 - The complete text of H sentences mentioned is given in Section 16.

4. FIRST AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES:	
INHALATION	Take away from exposure source and let breath fresh air. Place the injured person in a position comfortable for breathing. Making, if necessary, shares of first aid by trained personnel only. Seek medical advice.
SWALLOWING	Wash the mouth with clean water, remove any dentures. Drinking water. Do not induce vomiting. Seek medical advice.
SKIN CONTACT	Wash the skin immediately with plenty water. Wash the cloths, before re-wearing. Seek medical advice.
EYE CONTACT	Wash eyes immediately with plenty water for several minutes. Check for slow, then remove and rinse out with plenty of water. Seek medical advice.
4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED:	There are no known effects and / or specific symptoms.
4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED	In case of symptoms after contact with the substance, you should consult a physician.

5. FIRE FIGHTING MEASURES

5.1 EXTINGUISHING DEVICES:	Not combustible. Apply an extinguishing substance suitable for delimited fires.
5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE:	The substance is not classified as flammable. Due to the presence of volatile components, to the high temperatures we cannot exclude the formation of gases dangerous to human health.
5.3 ADVICE FOR FIREFIGHTERS:	
SPECIAL FIRE FIGHTING MEASURES	Dike water used to extinguish the fire, which is contaminated by this substance, and avoid it reaching watercourses, waste water piping or discharge piping.
PROTECTIVE MEASURES FOR FIRE-EXTINGUISHING PERSONNEL	In the case of a fire nearby, use a breathing apparatus with protection shield on face. Wear suitable protective clothing.

6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:	Wear suitable protective clothing as described in Section 8. Avoid generating dust. Vacuum up and collect spilled material in appropriate containers.
6.2 ENVIRONMENTAL PRECAUTIONS:	Avoid the dispersion and the formation dust. Prevent entry into waterways and ground water, sewer or water networks. Avoid contamination of soil. Notify authorities if released in large quantities.
6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:	Vacuum up and collect spilled material in appropriate labelled containers for its recovery or disposal. Dispose of the refusal through company authorized. Avoid dust formation. Prevent entry into waterways and ground water, sewer or water networks.
6.4 REFERENCE TO OTHER SECTIONS:	See section 1 for emergency numbers and section 8 for personal protective equipment. For information on waste disposal refer to section 13.

7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING:	Wear appropriate personal protective equipment (see sect. 8). Avoid exposure. Avoid generating dust. Wash hands after use. Do not eat, drink or smoke in areas where the material is handled, stored and processed. Remove contaminated clothing and protective equipment before entering areas where you eat.
7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:	Keep the product stored in dry, ventilated room, inside closed containers. Store away from acids and bases. Store inside the original containers.
7.3 SPECIFIC END USE(S):	No other information available.

8. PERSONAL PROTECTION/EXPOSURE CONTROL

8.1 CONTROL PARAMETERS:	Substance whose exposure limit values must be monitored at workplaces: inorganic lead and compounds (7439-92-1). – occupational exposure limit values: TLV - TWA 0.15 mg/m^3 (D.lgs. 81/2008 e s.m.i., Directive 98/24/CE); – binding biological limit value (LBV) in Italy: 60 µg Pb/100 ml blood (D.lgs. 81/2008 es.m.i.); – binding biological limit value (LBV): 70 µg Pb/100 ml blood (Directive 98/24/CE); – binding biological limit value (LBV) for workers of childbearing age in Italy: 40 µg Pb/100 ml blood D.lgs. 81/2008 e s.m.i.); – medical surveillance: exposure to a concentration of lead in air is greater than 0,075 mg/m^3, calculated as a time-weighted average over 40 hours per week, or a blood-lead level greater than 40 µg Pb/100 ml blood is measured in individual workers (D.lgs. 81/2008 e s.m.i., Directive 98/24/CE). Substance whose exposure limit values must be monitored at workplaces: flue dust, zinc refining (69012-63-1) – Total inhalable dust: TLV-TWA 10 mg/m^3 – Respirable dust: TLV-STEL 2 mg/m^3 DNEL/PNEC: not available data

8.2 EXPOSURE CONTROLS:	
8.2.1 APPROPRIATE ENGINEERING CONTROLS:	Cleaning of devices and work equipment. Storage of the substance in dedicated areas. Maintain adequate ventilation of the areas.
8.2.2 INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT:	
OCCUPATIONAL EXPOSURE CONTROLS	Keep adequate ventilation general. Do not eat, drink or smoke in areas where this material is handled, stored and processed. Storage of the substance in dedicated areas.
RESPIRATORY PROTECTION	When handling wear a mask equipped with a P2 dust filter.
HAND PROTECTION	Wear suitable protective gloves, of leather, cotton, rubber, to avoid risks of skin contact.
EYE PROTECTION	Wear safety glasses, where eye exposure is reasonably possible.
SKIN PROTECTION	Wear suitable work cloths.
PROTECTIVE EQUIPMENT	
8.2.3 ENVIRONMENTAL EXPOSURE CONTROLS:	No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:	
PHYSICAL STATE AT 20C° AND 101.3 kPa	Solid (powder, granules, pieces).
COLOUR	grey, greyish yellow, greyish green.
ODOUR	Odourless.
pH	Not available data.
MELTING POINT	Not applicable.
BOILING POINT	Not applicable to solids with a melting point above 300°C or which decompose before reaching the boiling point. The substance decomposes before boiling, (column 2 of Annex VII of the REACH Regulation (EC) n. 1907/2006).
FLASH POINT	Not applicable to inorganic substances (Column 2 of Annex VII of REACH regulation (EC) n. 1907/2006).
FLAMMABILITY	Not flammable.
EVAPORATION RATE	Not applicable to solids.
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	Not applicable.

VAPOUR PRESSURE	Not applicable if the melting point is above 300°C (Column 2 of Annex VII REACH regulation (EC) n. 1907/2006).
VAPOUR DENSITY	Not applicable
RELATIVE DENSITY	4.83 g/cm^3 at 20° C
WATER SOLUBILITY	Very low solubility.
OCTANOL/WATER PARTITION COEFFICIENT	Not applicable if the substance is inorganic (column 2 of Annex VII of the REACH regulation (EC) n. 1907/2006)
AUTO-IGNITION TEMPERATURE	The substance is not auto-flammable.
DECOMPOSITION TEMPERATURE	Not applicable.
VISCOSITY	Not applicable.
EXPLOSIVE PROPERTIES	The Zinc oxidized does not have flammability, explosive or self-inflammability properties.
GRANULOMETRY	The D_{50} is 3.44 µm, the D_{80} is < 20 µm.
OXIDISING PROPERTIES	The substance has no oxidizing properties, the compound is stable.

10. STABILITY AND REACTIVITY

10.1 REACTIVITY:	No reactivity in normal conditions.
10.2 CHEMICAL STABILITY:	Stable under normal conditions
10.3 POSSIBILITY OF HAZARDOUS REACTIONS:	No possibility of hazardous reactions if stored away from acids, bases and sources of heat.
10.4 CONDITIONS TO AVOIDED:	Avoid contact with acids and bases. Avoid contact with hot parts.
10.5 INCOMPATIBLE MATERIALS:	Acids and bases
10.6 DANGEROUS DECOMPOSITION PRODUCTS:	No hazardous decomposition products if stored away from acids, bases, and heat sources.

11. TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS:	
ACUTE TOXICITY- ORAL	LD_{50} (rat) > 2000 mg/kg_{bw} (Method: OECD401) - E. Bien (1995); G. Arecelin (1995).
ACUTE TOXICITY - DERMAL	LD_{50} (rat) > 2000 mg/kg_{bw} (Method: OECD402) - E. Rosner (1999).
ACUTETOXICITY - INHALATION	LC_{50} (rat - 4 ore) > 5.371 mg/l_{air} (Method: OECD403) - U. Decker (1999).
SKIN IRRITATION	Not irritating (F. Verdonck (2010)).
EYE IRRITATION	Not irritating (F. Verdonck (2010)).

SENSITIZATION	No sensitizing effects known (F. Verdonck (2010)).
GERM CELL MUTAGENICITY	Value used for CSA: Genetic toxicity - positive In absence of data, the mixture toxicity rules were applied according to EU CLP regulation. Analysis resulted in the classification for mutagenicity Cat 2 due to sufficient level of cadmium in the intermediate.
CARCINOGENICITY	In absence of data, the mixture toxicity rules were applied according to EU CLP regulation. Analysis resulted in the classification for carcinogenicity Cat 2 due to sufficient level of cadmium/nickel.
REPRODUCTION TOXICITY	The following information is taken into account for any hazard / risk assessment: In absence of data, the mixture toxicity rules were applied according to EU CLP regulation. Analysis resulted in the classification for reproduction Cat 1 due to sufficient level of lead.
SPECIFIC TARGET ORGAN TOXICITY(STOT) - SINGLE EXPOSURE	Not available data.
SPECIFIC TARGET ORGAN TOXICITY (STOT) - REPEATED EXPOSURE	Not available data.
ASPIRATION HAZARD	Not available data.

12. ECOLOGICAL INFORMATION

12.1 TOXICITY:	
TOXICITY FOR FISH	LC_{50} > 100 mg/l (96 h - Brachdanio rerio/ Danio rerio: Fish, Acute Toxicity Test, metod: OECD 203), (Hafner Ch. 2006).
TOXICITY TO AQUATIC INVERTEBRATES	EC_{50} >100 mg/l (48 h - Daphnia magna: Daphnia sp. Acute Immobilisation Test, metod: OECD 202), (Hafner Ch. 2006a, b).
TOXICITY FOR AQUATIC PLANTS AND ALGAE	EC_{50}: 16.2 mg/l test based on growth rate (72 ore – Desmodesmus subspicatus: Alga, Growth Inhibition Test, method: OECD 201) (Hafner Ch. 2007a) EC_{50}: 1.8 mg/l test based on yield (72 ore – Desmodesmus subspicatus: Alga, Growth Inhibition Test, method: OECD 201) (Hafner Ch. 2007a) EC_{10}: 0.3 mg/l test based on growth rate (72 ore – Desmodesmus subspicatus: Alga, Growth Inhibition Test, method: OECD 201) (Hafner Ch. 2007a) EC_{10}: 0.05 mg/l test based on growth yield (72 ore – Desmodesmus subspicatus: Alga, Growth Inhibition Test, method: OECD 201) (Hafner Ch. 2007a) EC_{50}: 12.3 mg/l test based on growth rate (72 ore – Desmodesmus subspicatus: Alga, Growth Inhibition Test, method: OECD 201) (Hafner Ch. 2007b) EC_{50}: 3.3 mg/l test based on growth yield (72 ore – Desmodesmus subspicatus: Alga, Growth Inhibition Test, method: OECD 201) (Hafner Ch. 2007b) EC_{10}: 2.6 mg/l test based on growth rate (72 ore – Desmodesmus subspicatus: Alga, Growth Inhibition Test, method: OECD 201) (Hafner Ch. 2007b) EC_{10}: 0.4 mg/l test based on growth yield (72 ore – Desmodesmus subspicatus: Alga, Growth Inhibition Test, method: OECD 201) (Hafner Ch. 2007b)
12.2 PERSISTENCE AND BIODEGRADABILITY:	Not applicable to inorganic substances.

12.3 BIOACCUMULATIVE POTENTIAL:	The following information is considered for any hazard / risk / bioaccumulation assessment: Zinc is an essential element which is actively regulated by organisms, so bio-concentration / bioaccumulation is not considered relevant.
12.4 MOBILITY IN SOILS:	Not available data.
12.5 RESULTS OF PBT AND vPvB ASSESSMENT:	Not available data.

13. DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS:	The generation of waste should be avoided or minimized. Collect, reprocess, recycle if possible. Dispose of in accordance with the provisions of environmental law and local authorities.

14. TRANSPORT INFORMATION

LAND: Road/Railway	**UN Number**	**Transport Name**	**Class**	**Package Group**	**Labels**	**Other Information**
ADR/RID Classification	UN3077	Environmentally hazardous substance, solid, n.o.s. (Flue dust, Zinc-refining, zinc oxidized)	9 (M7 dangerous substance in the aquatic environment, solid)	III		Danger Identification Number 90 Excepted quantities E1 Limited quantities of 5 kg Transport category 3
WATER COURSES: Navigable channels	**UN Number**	**Transport Name**	**Class**	**Package Group**	**Label**	**Other Information**
AND Classification	UN3077	Environmentally hazardous substance, solid, n.o.s. (Flue dust, Zinc-refining, zinc oxidized)	9	III		
SEA:	**UN Number**	**Transport Name**	**Class**	**Package Group**	**Label**	**Other Information**
IMO/IMDG Classification	UN3077	Environmentally hazardous substance, solid, n.o.s. (Flue dust, Zinc-refining, zinc oxidized)	9	III		Marine pollutant: Sì (P) EMS Number: F-A, S-F.

AIR:	UN Number	Transport Name	Class	Package Group	Label	Other Information
IATA Class	UN3077	Environmentally hazardous substance, solid, n.o.s. (Flue dust, Zinc-refining, zinc oxidized)	9	III		Packing instruction: Y911 if gross weight < 30 kg Y911 if gross weight ≥ 30 kg

Refer to Sections 7 and 8 for information about precautions for users.

15. REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE:	There are no known additional national regulations.
15.2 CHEMICAL SAFETY ASSESSMENT:	Within REACH Consortium Zinc (IZA-Europe), according to the requirements of the REACH Regulation (EC) No 1907/2006 for the registration of the product, was developed the Chemical Safety Report (CSR).

16. OTHER INFORMATION

LIST OF RELEVANT R-PHRASES / WARNINGS / CAUTIONS:	Regulation (EC) n. 1272/2008: H350: Suspected of causing cancer. H360: May damage fertility or the unborn child. H373: May cause damage to organs through prolonged or repeated exposure. H412: Harmful to aquatic life with long lasting effects.
REGISTRATION NUMBER, REACH REGULATION (EC) n. 1907/2006:	01-2119480405-39-0019
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This Safety Data Sheet has been adapted to the REACH Regulation (EC) n. 1907/2006 subsequent changes, and Regulation (UE) 2015/830, and CLP Regulation EC n. 1272/2008 subsequent changes, and to Directive 2008/68/CE subsequent changes (ADR 2017).
Information of this Data Safety Sheet is precise and reliable according to the state of the art as per the publication date. They shall be taken as safety directive for use, handling, disposal, storage, and transport, and cannot be considered as warranty and specification.
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