# SAFETY DATA SHEET

**DOW FRANCE S.A.S.**

Safety Data Sheet according to Reg. (EU) No 2015/830

**Product name: DOWSIL™ TC-4060 GB250 Thermal Gel Part B**

**Revision Date:** 21.10.2020
**Version:** 2.0
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DOW FRANCE S.A.S. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**1.1 Product identifier**
**Product name:** DOWSIL™ TC-4060 GB250 Thermal Gel Part B

**1.2 Relevant identified uses of the substance or mixture and uses advised against**
**Identified uses:** Electronics

**1.3 Details of the supplier of the safety data sheet**
**COMPANY IDENTIFICATION**
DOW FRANCE S.A.S.
23 AVENUE JULES RIMET
93210 LA PLAINE SAINT-DENIS
FRANCE

**Customer Information Number:** (31) 115 67 2626
SDSQuestion@dow.com

**1.4 EMERGENCY TELEPHONE NUMBER**
**24-Hour Emergency Contact:** 00 33 388 736 000
**Local Emergency Contact:** 00 33 388 736 000
**ORFILA:** + 33 (0)1 45 42 59 59

## SECTION 2: HAZARDS IDENTIFICATION

**2.1 Classification of the substance or mixture**

**Classification according to Regulation (EC) No 1272/2008:**
Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

**2.2 Label elements**

**Labelling according to Regulation (EC) No 1272/2008:**
Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

**Precautionary statements**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P234 Keep only in original packaging.
P403 Store in a well-ventilated place.

**2.3 Other hazards**
May generate flammable hydrogen gas. Avoid contact with water, alcohols, acidic, basic, or oxidizing materials.
This product contains no substances assessed to be PBT or vPvB at levels of 0.1% or higher.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Chemical nature:** Silicone compound
**3.2 Mixtures**

This product is a mixture.

| CASRN / EC-No. / Index-No. | REACH Registration Number | Concentration | Component | Classification: REGULATION (EC) No 1272/2008 |
|---|---|---|---|---|
| Substances with a workplace exposure limit | | | | |
| **CASRN** Not available **EC-No.** Not available **Index-No.** – | _ | >= 75,0 - <= 90,0 % | Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane | Not classified |
| **CASRN** Not available **EC-No.** Not available **Index-No.** – | _ | >= 10,0 - <= 21,0 % | Siloxane and n-Alkyl modified Zinc Oxide | Not classified |

## SECTION 4: FIRST AID MEASURES

**4.1 Description of first aid measures**
**General advice:**
If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air and keep comfortable for breathing; consult a physician.

**Skin contact:** Wash off with plenty of water.

**Eye contact:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**Ingestion:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**4.2 Most important symptoms and effects, both acute and delayed:**
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

**4.3 Indication of any immediate medical attention and special treatment needed**
**Notes to physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

## SECTION 5: FIREFIGHTING MEASURES

**5.1 Extinguishing media**

**Suitable extinguishing media:** Water spray. Alcohol-resistant foam. Carbon dioxide (CO2).

**Unsuitable extinguishing media:** Dry chemical.

**5.2 Special hazards arising from the substance or mixture**

**Hazardous combustion products:** Silicon oxides. Metal oxides. Formaldehyde. Carbon oxides.

**Unusual Fire and Explosion Hazards:** Applying foam will release significant amounts of hydrogen gas that can be trapped under the foam blanket.. Exposure to combustion products may be a hazard to health..

**5.3 Advice for firefighters**

**Fire Fighting Procedures:** Use water spray to cool unopened containers.. Evacuate area.. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations..
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Do not allow extinguishing medium to contact container contents. Most fire extinguishing media will cause hydrogen evolution, and once the fire is put out, may accumulate in poorly ventilated or confined areas and result in flash fire or explosion if ignited. Remove undamaged containers from fire area if it is safe to do so.

**Special protective equipment for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary.. Use personal protective equipment..

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**6.1 Personal precautions, protective equipment and emergency procedures:** Follow safe handling advice and personal protective equipment recommendations.

**6.2 Environmental precautions:** Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

**6.3 Methods and materials for containment and cleaning up:** Soak up with inert absorbent material. Clean up remaining materials from spill with suitable absorbant. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Materials in contact with water, moisture, acids or bases have the potential to generate hydrogen gas. Recovered material should be stored in a vented container. The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to overpressurization of the container.

**6.4 Reference to other sections:**
See sections: 7, 8, 11, 12 and 13.

## SECTION 7: HANDLING AND STORAGE

**7.1 Precautions for safe handling:** Keep away from water. Protect from moisture. Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice.
Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

**7.2 Conditions for safe storage, including any incompatibilities:** Keep in properly labelled containers. Store in original container. Store in accordance with the particular national regulations. Product may evolve minute quantities of flammable hydrogen gas which can accumulate. Adequately ventilate to maintain vapors well below flammability limits and exposure guidelines. Do not repackage. Clogged container vents may increase pressure build up. Store in a closed container.

Do not store with the following product types: Strong oxidizing agents.
Unsuitable materials for containers**:** Do not store in or use containers except the original product package.

**7.3 Specific end use(s):** See the technical data sheet on this product for further information.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**8.1 Control parameters**
If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

| Component | Regulation | Type of listing | Value |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane | ACGIH | TWA Respirable particulate matter | 1 mg/m3 , Aluminium |
| | Further information: A4: Not classifiable as a human carcinogen | | |
| | FR VLE | VME | 10 mg/m3 |
| | Further information: Indicative exposure limits: Indicative exposure limits | | |
| Siloxane and n-Alkyl modified Zinc Oxide | ACGIH | TWA Respirable particulate matter | 2 mg/m3 |
| | ACGIH | STEL Respirable particulate matter | 10 mg/m3 |
| | FR VLE | VME | 10 mg/m3 |
| | Further information: Indicative exposure limits: Indicative exposure limits | | |
| | FR VLE | VME | 5 mg/m3 |
| | Further information: Indicative exposure limits: Indicative exposure limits | | |
| | FR VLE | VME Fumes | 5 mg/m3 |
| | Further information: Indicative exposure limits: Indicative exposure limits | | |
| | FR VLE | VME Dust | 10 mg/m3 |
| | Further information: Indicative exposure limits: Indicative exposure limits | | |

**Recommended monitoring procedures**
Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with the Occupational Exposure Limits and the adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples should be analysed by an accredited laboratory.
Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy); European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents); European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents). Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.
National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods.
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods.
Health and Safety Executive (HSE), United Kingdom: Methods for the Determination of Hazardous Substances.
Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany.
L'Institut National de Recherche et de Securité, (INRS), France.

**Derived No Effect Level**
Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane
**Workers**

| ***Acute systemic effects*** | | ***Acute local effects*** | | ***Long-term systemic effects*** | | ***Long-term local effects*** | |
|---|---|---|---|---|---|---|---|
| Dermal | Inhalation | Dermal | Inhalation | Dermal | Inhalation | Dermal | Inhalation |
| n.a. | n.a. | n.a. | n.a. | n.a. | 3,0 mg/m3 | n.a. | 3,0 mg/m3 |

**Consumers**

| ***Acute systemic effects*** | | | ***Acute local effects*** | | ***Long-term systemic effects*** | | | ***Long-term local effects*** | |
|---|---|---|---|---|---|---|---|---|---|
| Dermal | Inhalation | Oral | Dermal | Inhalation | Dermal | Inhalation | Oral | Dermal | Inhalation |
| n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 0,750 mg/m3 | n.a. | n.a. | 0,750 mg/m3 |

Siloxane and n-Alkyl modified Zinc Oxide

**Workers**

| ***Acute systemic effects*** | | ***Acute local effects*** | | ***Long-term systemic effects*** | | ***Long-term local effects*** | |
|---|---|---|---|---|---|---|---|
| Dermal | Inhalation | Dermal | Inhalation | Dermal | Inhalation | Dermal | Inhalation |
| n.a. | n.a. | n.a. | n.a. | 83 mg/kg bw/day | 5 mg/m3 | n.a. | n.a. |

**Consumers**

| ***Acute systemic effects*** | | | ***Acute local effects*** | | ***Long-term systemic effects*** | | | ***Long-term local effects*** | |
|---|---|---|---|---|---|---|---|---|---|
| Dermal | Inhalation | Oral | Dermal | Inhalation | Dermal | Inhalation | Oral | Dermal | Inhalation |
| n.a. | n.a. | n.a. | n.a. | n.a. | 83 mg/kg bw/day | 2,5 mg/m3 | 0,83 mg/kg bw/day | n.a. | n.a. |

**Predicted No Effect Concentration**

Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane

| **Compartment** | **PNEC** |
|---|---|
| Sewage treatment plant | 20 mg/l |

Siloxane and n-Alkyl modified Zinc Oxide

| **Compartment** | **PNEC** |
|---|---|
| Fresh water | 20,6 µg/l |
| Marine water | 6,1 µg/l |
| Sewage treatment plant | 52 µg/l |
| Fresh water sediment | 117,8 mg/kg |
| Marine sediment | 56,5 mg/kg |
| Soil | 35,6 mg/kg |

**8.2 Exposure controls**

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

**Individual protection measures**

**Eye/face protection:** Use safety glasses (with side shields). Safety glasses (with side shields) should be consistent with EN 166 or equivalent.

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified

under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.
**Other protection:** Wear clean, body-covering clothing.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator.
Use the following CE approved air-purifying respirator: Organic vapor cartridge, type A (boiling point >65 ºC, meeting standard EN 14387).

**Environmental exposure controls**
See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**9.1 Information on basic physical and chemical properties**

| | |
|---|---|
| **Appearance** | |
| **Physical state** | viscous liquid |
| **Color** | blue |
| **Odor** | Odorless |
| **Odor Threshold** | No data available |
| **pH** | No data available |
| **Melting point/range** | No data available |
| **Freezing point** | No data available |
| **Boiling point (760 mmHg)** | > 35 °C |
| **Flash point** | **closed cup** > 100 °C |
| **Evaporation Rate (Butyl Acetate = 1)** | No data available |

| | |
|---|---|
| **Flammability (solid, gas)** | Not Applicable |
| **Flammability (liquids)** | Not classified as supporting combustion according to the transport regulations. |
| **Lower explosion limit** | No data available |
| **Upper explosion limit** | No data available |
| **Vapor Pressure** | No data available |
| **Relative Vapor Density (air = 1)** | No data available |
| **Relative Density (water = 1)** | 3,45 |
| **Water solubility** | No data available |
| **Partition coefficient: n-octanol/water** | No data available |
| **Auto-ignition temperature** | No data available |
| **Decomposition temperature** | No data available |
| **Dynamic Viscosity** | 150 mPa.s at 25 °C |
| **Kinematic Viscosity** | > 20,55 mm2/s at 40 °C |
| **Explosive properties** | No data available |
| **Oxidizing properties** | The substance or mixture is not classified as oxidizing. |

**9.2 Other information**

| | |
|---|---|
| **Molecular weight** | No data available |

NOTE: The physical data presented above are typical values and should not be construed as a specification.

## SECTION 10: STABILITY AND REACTIVITY

**10.1 Reactivity:** Not classified as a reactivity hazard.

**10.2 Chemical stability:** Stable under normal conditions.

**10.3 Possibility of hazardous reactions:** Can react with strong oxidizing agents. Product may evolve flammable hydrogen gas on contact with water, alcohols, acidic or basic materials, many metals or metallic compounds and can form explosive mixtures in air. Hazardous decomposition products will be formed at elevated temperatures.

**10.4 Conditions to avoid:** Exposure to moisture

**10.5 Incompatible materials:** Avoid contact with oxidizing materials.

**10.6 Hazardous decomposition products:**
Decomposition products can include and are not limited to: Formaldehyde.

## SECTION 11: TOXICOLOGICAL INFORMATION

*Toxicological information appears in this section when such data is available.*

**11.1 Information on toxicological effects**

**Information on likely routes of exposure**
Inhalation, Eye contact, Skin contact, Ingestion.

**Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)**

**Acute oral toxicity**
Very low toxicity if swallowed. Swallowing may result in gastrointestinal irritation. May cause nausea and vomiting.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):
LD50, > 5 000 mg/kg Estimated.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
Based on information for a similar material: LD50, Rat, > 48 500 mg/kg

**Siloxane and n-Alkyl modified Zinc Oxide**
Single dose oral LD50 has not been determined.

For similar material(s): LD50, Rat, > 5 000 mg/kg

**Acute dermal toxicity**
Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, > 2 000 mg/kg Estimated.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
Based on data from similar materials LD50, Rabbit, > 2 000 mg/kg No deaths occurred at this concentration.

**Siloxane and n-Alkyl modified Zinc Oxide**
The dermal LD50 has not been determined.

**Acute inhalation toxicity**
At room temperature, exposure to vapor is minimal due to low volatility. Vapor from heated material may cause respiratory irritation.

As product: The LC50 has not been determined.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
As product: The LC50 has not been determined.

**Siloxane and n-Alkyl modified Zinc Oxide**
Dust may cause irritation to upper respiratory tract (nose and throat).

For similar material(s): LC50, Rat, 4 Hour, dust/mist, > 5 mg/l No deaths occurred at this concentration.

**Skin corrosion/irritation**
Based on information for component(s):
Brief contact is essentially nonirritating to skin.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
Brief contact is essentially nonirritating to skin.

**Siloxane and n-Alkyl modified Zinc Oxide**
Prolonged contact is essentially nonirritating to skin.

**Serious eye damage/eye irritation**
Based on information for component(s):
May cause slight temporary eye irritation.
Corneal injury is unlikely.
May cause mild eye discomfort.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
May cause slight temporary eye irritation.
Corneal injury is unlikely.
May cause mild eye discomfort.

**Siloxane and n-Alkyl modified Zinc Oxide**
May cause slight temporary eye irritation.
Corneal injury is unlikely.

**Sensitization**
For skin sensitization:
Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

For respiratory sensitization:
No relevant data found.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**

For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

**Siloxane and n-Alkyl modified Zinc Oxide**
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**
Available data are inadequate to determine single exposure specific target organ toxicity.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
Available data are inadequate to determine single exposure specific target organ toxicity.

**Siloxane and n-Alkyl modified Zinc Oxide**
Available data are inadequate to determine single exposure specific target organ toxicity.

**Aspiration Hazard**
Based on physical properties, not likely to be an aspiration hazard.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
Based on physical properties, not likely to be an aspiration hazard.

**Siloxane and n-Alkyl modified Zinc Oxide**
Based on physical properties, not likely to be an aspiration hazard.

**Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)**

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**
Contains component(s) which have been reported to cause effects on the following organs in humans:
Respiratory tract.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**Siloxane and n-Alkyl modified Zinc Oxide**
In animals, effects have been reported on the following organs:

Lung.
In humans, effects have been reported on the following organs:
Respiratory tract.

**Carcinogenicity**
No relevant data found.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
No relevant data found.

**Siloxane and n-Alkyl modified Zinc Oxide**
Available data are inadequate to evaluate carcinogenicity.

**Teratogenicity**
No relevant data found.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
No relevant data found.

**Siloxane and n-Alkyl modified Zinc Oxide**
No relevant data found.

**Reproductive toxicity**
No relevant data found.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
No relevant data found.

**Siloxane and n-Alkyl modified Zinc Oxide**
In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

**Mutagenicity**
Contains component(s) which were negative in some in vitro genetic toxicity studies and positive in others.

**Information for components:**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
No relevant data found.

**Siloxane and n-Alkyl modified Zinc Oxide**
In vitro genetic toxicity studies were negative in some cases and positive in other cases.

## SECTION 12: ECOLOGICAL INFORMATION

*Ecotoxicological information appears in this section when such data is available.*

**12.1 Toxicity**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**

**Acute toxicity to fish**
Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).
For similar material(s):
LC50, Fish, 96 Hour, > 100 mg/l

**Acute toxicity to aquatic invertebrates**
For similar material(s):
EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l

**Acute toxicity to algae/aquatic plants**
For similar material(s):
EC50, algae, 14 d, > 2 000 mg/l

**Chronic toxicity to fish**
No toxicity at the limit of solubility
For similar material(s):
NOEC, Cyprinodon variegatus (sheepshead minnow), 33 d, 91 mg/l

**Chronic toxicity to aquatic invertebrates**
No toxicity at the limit of solubility

**Toxicity to Above Ground Organisms**
Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
Based on information for a similar material:
oral LD50, Colinus virginianus (Bobwhite quail), > 5 000 mg/kg

**Siloxane and n-Alkyl modified Zinc Oxide**
**Acute toxicity to aquatic invertebrates**
Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).
On basis of test data.
EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l

**12.2 Persistence and degradability**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**
**Biodegradability:** The product is not biodegradable.

**Siloxane and n-Alkyl modified Zinc Oxide**
**Biodegradability:** No relevant data found.

**12.3 Bioaccumulative potential**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**

**Partition coefficient: n-octanol/water(log Pow):** >= 4

**Siloxane and n-Alkyl modified Zinc Oxide**

**Bioaccumulation:** No relevant data found.

**12.4 Mobility in soil**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**

Expected to be relatively immobile in soil (Koc > 5000).

**Siloxane and n-Alkyl modified Zinc Oxide**

No relevant data found.

**12.5 Results of PBT and vPvB assessment**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**Siloxane and n-Alkyl modified Zinc Oxide**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**12.6 Other adverse effects**

**Alumina treated with Di Me Siloxane, Mono-trimethoxysiloxy- and Trimethylsiloxy-terminated and n-Decyltrimethoxysilane**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Siloxane and n-Alkyl modified Zinc Oxide**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

## SECTION 13: DISPOSAL CONSIDERATIONS

**13.1 Waste treatment methods**

Do not dump into any sewers, on the ground, or into any body of water. This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

## SECTION 14: TRANSPORT INFORMATION

**Classification for ROAD and Rail transport (ADR/RID):**

| | | |
|---|---|---|
| **14.1** | **UN number** | Not applicable |
| **14.2** | **UN proper shipping name** | Not regulated for transport |
| **14.3** | **Transport hazard class(es)** | Not applicable |
| **14.4** | **Packing group** | Not applicable |
| **14.5** | **Environmental hazards** | Not considered environmentally hazardous based on available data. |
| **14.6** | **Special precautions for user** | No data available. |

**Classification for SEA transport (IMO-IMDG):**

| | | |
|---|---|---|
| **14.1** | **UN number** | Not applicable |
| **14.2** | **UN proper shipping name** | Not regulated for transport |
| **14.3** | **Transport hazard class(es)** | Not applicable |
| **14.4** | **Packing group** | Not applicable |
| **14.5** | **Environmental hazards** | Not considered as marine pollutant based on available data. |
| **14.6** | **Special precautions for user** | No data available. |
| **14.7** | **Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code** | Consult IMO regulations before transporting ocean bulk |

**Classification for AIR transport (IATA/ICAO):**

| | | |
|---|---|---|
| **14.1** | **UN number** | Not applicable |
| **14.2** | **UN proper shipping name** | Not regulated for transport |
| **14.3** | **Transport hazard class(es)** | Not applicable |
| **14.4** | **Packing group** | Not applicable |
| **14.5** | **Environmental hazards** | Not applicable |
| **14.6** | **Special precautions for user** | No data available. |

**Further information:**
VENTED PACKAGES ARE FORBIDDEN FOR AIR TRANSPORT.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

## SECTION 15: REGULATORY INFORMATION

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

**REACh Regulation (EC) No 1907/2006**
This product contains only components that have been either registered, are exempt from registration, are regarded as registered or are not subject to registration according to Regulation (EC) No. 1907/2006 (REACH)., The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer´s/user´s responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

**Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.**
Listed in Regulation: Not applicable

**Installations classified for the protection of the environment (Environment Code R511-9)**
not determined

**Occupational Illnesses (R-461-3, France):** (Not applicable)

**Further information**
Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

**15.2 Chemical safety assessment**
No Chemical Safety Assessment has been carried out for this substance/mixture.

## SECTION 16: OTHER INFORMATION

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008**
This product is not classified as dangerous according to EC criteria.

**Revision**
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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

| | |
|---|---|
| ACGIH | USA. ACGIH Threshold Limit Values (TLV) |
| FR VLE | France. Occupational Exposure Limits (INRS) |
| STEL | Short-term exposure limit |
| TWA | 8-hour, time-weighted average |
| VME | Time Weighted Average |

**Full text of other abbreviations**
ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

**Information Source and References**
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW FRANCE S.A.S. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product

as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.
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