## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

· **1.1 Product identifier**
Trade Name: BTi™ AHSA

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
Identified uses: Manufacture of substances

· **1.3 Details of the supplier of the safety data sheet**
Company: Bisor Corporation
5358, Huyi Road,
Shanghai,201806,P.R.
CHINA

Telephone: +86 21 6183 4121
Fax: +86 21 5186 1853
Email: info@bisorcare.com
Web: www.bisorcare.com

## 2. POSSIBLE HAZARDS

· **2.1 Classification of the substance or mixture**
May cause eye, skin and respiratory tract irritation. May be harmful if inhaled.
OSHA regulatory status This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

HMIS Ratings: Health 1 - Flammability: 0 - Reactivity: 0

Routes of exposure Inhalation. Eye contact. Skin contact. Inhalation.
Eyes Dust may cause: mechanical irritation.

Skin $TiO_2$ pigments are not irritant but as with all fine powders can adsorb moisture and natural oils from the surface of the skin during prolonged exposure.
Inhalation May cause respiratory tract irritation.

| | |
|---|---|
| Ingestion | May cause discomfort if swallowed. |
| Target organs | Eyes. Skin. Respiratory system |
| Chronic effects | Dusts or powder may irritate the respiratory tract, skin and eyes. Frequent inhalation of fume/dust over a long period of time may increase the risk of developing lung diseases although epidemiological studies among titanium dioxide workers could not demonstrate this. |
| Signs and symptoms | Upper respiratory tract irritation. Coughing. Irritation of eyes and mucous membranes. Skin irritation. |

· **2.2. Label elements**
USA: Label has to comply with OSHA Hazard Communication Standard ((29 CFR 1910.1200).
CANADA: Label has to state D2A and corresponding WHMIS symbol.

· **2.3 Other hazards**
-

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

· **3.1 Chemical Characterisation (Substance)**
-

· **3.2 Chemical Characterisation (Mixture)**
Description: Coated pigment
Hazardous components: Titanium Dioxide

| CAS-Nr. | Substance identification acc. to EC directive |
|---|---|
| 13463-67-7 | Titanium Dioxide |
| 21645-51-2 | Aluminum Hydroxide |
| 57-11-4 | Stearic Acid |

## 4. FIRST AID MEASURES

· **4.1 Description of first aid measures**

| | |
|---|---|
| General indications: | In case of contact with eyes flush with plenty of water |
| Inhalation: | Move to fresh air atmosphere. Give symptomatic treatment as necessary. |
| Skin contact: | Wash with soap and water. |
| Eye contact: | Wash with water or neutral eyewash solution. |
| Ingestion: | Do not induce vomiting. Give up to 200 ml water. In case of persistant symptoms, consult a doctor. |

· **4.2 Most important symptoms and effects, both acute and delayed**
-

· **4.3 Indication of any immediate medical attention and special treatment needed**
-

## 5. FIREFIGHTING MEASURES

· **5.1 Extinguishing media**
No restrictions

· **5.2 Special hazards arising from the substance or mixture**
The product itself does not burn. Product is inert, not flammable and incombustible.
NFPA Ratings: Health 1 - Flammability: 0 - Reactivity: 0

· **5.3 Advice for firefighters**
Equipment depending on the combustion of other surrounding materials.

## 6. ACCIDENTAL RELEASE MEASURES

· **6.1 Personal precautions, protective equipment and emergency procedures**
Avoid dust formation. Ensure adequate ventilation.

· **6.2 Environmental precautions**
Avoid dust dispersion to the environment. Dust may cause the surroundings to become white.
Prevent
leakages from entering drains and ditches that lead to natural waterways.

· **6.3 Methods and material for containment and cleaning up**
Use any suitable mechanical means (e.g. vacuum, sweeping), but avoid dusting during clean-up.

· **6.4 Reference to other sections**
-

## 7. HANDLING AND STORAGE

· **7.1 Precautions for safe handling**
Avoid dust formation during handling. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. In case of insufficient ventilation, wear suitable respiratory equipment.

· **7.2 Conditions for safe storage, including any incompatibilities**

| | |
|---|---|
| Fire Precautions: | The product is not flammable |
| Storage conditions/ packing material: | Keep in a dry place. |
| Incompatible products: | No restrictions |

· **7.3 Specific end use(s)**
-

## 8. Exposure controls/personal protection

· **8.1 Control parameters**
Exposure Limit Values Titanium dioxide
PEL: (OSHA) 15 mg/m3 8 hr. TWA Total dust.
TLV (ACGIH) 10 mg/m3 TWA

· **8.2 Exposure controls**

| | |
|---|---|
| Engineering measures: | None required |

**Personal Protection Equipment**

| | |
|---|---|
| Industrial hygiene measures: | Maintain exposures below applicable exposure limits: |
| Respiratory protection: | A respirator must be used if the dust concentration is likely to exceed the Occupational exposure limit. At higher concentrations wear particle filter approved by NIOSH. |
| Hand protection: | Prolonged exposure should be avoided by wearing suitable protective gloves and clothing. |
| Eye protection: | The use of an approved dustproof goggles is recommended if the dust concentration is likely to exceed the Occupational exposure limit |
| Skin protection: | TiO2 pigments are not irritant but as with all fine powders can adsorb moisture and natural oils from the surface of the skin during prolonged exposure. Prolonged exposure should be avoided by wearing suitable protective gloves and clothing. |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

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

**Appearance**
**Physical State:** powder **Colour:** white **Odour:** none

**Critical Data**

| | |
|---|---|
| Boiling point or range: | not applicable |
| Flash point: | not flammable |
| Ignition temperature: | not flammable |
| Auto-ignition temperature: | not flammable |
| Oxidizing properties: | none |
| Explosive properties: | no danger of explosion. |
| Explosivity or flammability limit in air: | - |
| Vapour pressure: | not applicable |
| Partition coefficient: | not applicable |
| Viscosity: | not applicable |

· **9.2 Other information**
-

## 10. STABILITY AND REACTIVITY

· **10.1 Reactivity**
No special reactivity known

· **10.2 Chemical stability**
Stable under normal use conditions

· **10.3 Possibility of hazardous reactions**
No hazardous reactions known

· **10.4 Conditions to avoid**
Stable under normal use conditions

· **10.5 Incompatible materials**
None known

· **10.6 Hazardous decomposition products**
No hazardous decomposition products known

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## 11. TOXICOLOGICAL INFORMATION

· **11.1 Information on toxicological effects**

· **Acute toxicity:**
$LD_{50}$ (rats, oral) > 10,000 mg/kg
Inhalative $LC_{50}$/4 hrs (Rat): > 6.8 mg/l

· **Irritation/corrosion:**
$TiO_2$ pigments are not chemically irritant but as with all fine powders can adsorb moisture and natural oils from the surface of the skin during prolonged exposure. Dust may cause:mechanical irritation.of eyes and respiratory tract.

· **Sensitation:**
No sensitation known

· **Chronic Toxicity:**
**Carcinogenicity:**

The carcinogenic potential of inhaled titanium dioxide has been investigated in several inhalation carcinogenicity studies in rats and mice.
In rats, exposed by inhalation to titanium dioxide (> 100 nm) up to 250 mg/m3 for 2 years the incidence of lung tumours was increased only at the highest dose. In another study, no increased incidences of lung tumours were observed in rats exposed to titanium dioxide at 5 mg/m3 for two years.

Rats exposed by inhalation to ultrafine titanium dioxide (< 100 nm) at ~10 mg/m3 for 18 months developed an increased number of benign and malign tumours. In contrast, no difference in the lung tumour rate compared to the control was observed in mice exposed by inhalation to ultrafine titanium dioxide (~ 10 mg/m3) for up to 13.5 months.

The results of these studies showed that the tumours occurred only in rats and at dose levels resulting in lung overload and impairment of the lung clearance mechanisms. In addition, the potential for these adverse effects appears to be closely related to the particle size and the amount of the exposed surface area that comes into contact with the respiratory system. Studies with different species (e.g. hamster, mouse) indicate that the rat is significantly more sensitive than the others to lung overload and inflammation finally causing lung cancer. However, the relevance of this effect for humans occupationally exposed to titanium dioxide is highly questionable.

The International Agency on the Research on Cancer (IARC) evaluated titanium dioxide irrespective of the particle size as possibly carcinogenic to humans (Group 2B), based upon inadequate evidence in humans and sufficient evidence in experimental animals for the carcinogenicity of titanium dioxide. Based on the IARC evaluation guidelines, the increased incidence of lung tumours observed in two studies in rats is adequate for an assessment as carcinogenic in animals.

Several epidemiological studies have been performed in the titanium dioxide industry. These studies did not suggest any relationship between occupational exposure to titanium dioxide and lung cancer.

· **Further information:**
-

## 12. Ecological information

· **12.1 Toxicity**
Aquatic toxicity: Fish $LC_0$ (Leuciscus idus, 48h): > 1000 mg/l

· **12.2 Persistence and degradability**
Methods for the determination of biodegradability are not applicable to inorganic substances.

· **12.3 Bioaccumulative potential**
The product is practically insoluble in water and not biodegradable.

· **12.4 Mobility in soil**
No data

· **12.5 Results of PBT and vPvB assessment**
PBT and vPvB assessments are not relevant for inorganic substances. Titanium Dioxide is an inorganic substance, thus a PBT and vPvB assessment is not required.

· **12.6 Other adverse effects**
-

## 13. DISPOSAL CONSIDERATIONS

· **13.1 Waste treatment methods**

| | |
|---|---|
| Product: | No hazardous waste according to European Directive 91/689/EEC and RCRA ( Resource Conservations and Recovery Act - USA). Place in an appropriate disposal facility in compliance with local and national regulations. |
| Contaminated packaging: | Containers that cannot be cleaned must be treated as waste and disposed of in an approved industrial incineration facility. The empty and clean containers may be reused in conformity with regulations. |
| Cleanser: | water |

## 14. TRANSPORT INFORMATION

· **14.1 UN number**
-

· **14.2 UN proper shipping name**
-

· **14.3 Transport hazard class(es)**
-

· **14.4 Packing group**
-

· **14.5 Environmental hazards**
-

· **14.6 Special precautions for user**
The product is not classified as a hazardous material according to the DOT, ADR/RID, IMDG, IATA on the transport of dangerous or hazardous goods.

· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
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## 15. REGULATORY INFORMATION

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

· **National Regulations**
OSHA: This product is considered hazardous under the OSHA Hazard Communication Standard ((29 CFR 1910.1200).

| | |
|---|---|
| SARA Title III Sec. 302/303 (Extremely Hazardous Substances): | Not listed |
| SARA Title III Sec. 311/312 (40 CFR 370) | Hazard Category: None |
| SARA Title III Sec. 313 (Toxic Chemicals Emissions Reporting): | Not listed |
| CERCLA Hazardous Substance (40 CFR Part 302): | Not listed |
| Calfornia Proposition 65: | WARNING! This product contains a chemical known to the State of California to cause cancer: Titanium Dioxide (airborne, unbound particles of respirable size) The listing does not cover Titanium Dioxide when it remains bound within a product matrix. |
| Canada (WHMIS) | This product has been classified as D2A controlled product under WHMIS. The listing does not cover titanium dioxide when it is inextricably bound within a product. |
| EINECS: (European Inventory of Existing Commercial Chemical Substances) | 236-675-5 |
| ELINCS: (European List of Notified Chemical Substances) | not listed |
| TSCA: (Toxic Substances Control Act (EPA-Inventory) | 13463-67-7 |
| AICS: (Australien Inventory of Chemical Substances) | 13463-67-7 |
| DSL: (Canadien Domestic Substances List) | 13463-67-7 |
| NDSL: (Canadien Non-Domestic Substances List) | not listed |
| KECI: (Korean Existing Chemicals Inventory) | KE33900 |
| PICCS: (Philippinian Inventory of Commercial Chemical Substances) | 522 5600 |
| BAGT: (Giftliste des BA für Abfall und Gesundheitswesen der Schweiz | G2950 |
| METI: (Ministry of Economy, Trade an Industry - Japan) | 1-558 |
| SEPA: (State Environmental Protection Administration - China) | 13463-67-7 |

· **15.2 Chemical safety assessment**
The substance has undergone a safety assessment.

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## 16. OTHER INFORMATION

**Further information**



The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Bisor Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.bisorcare.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.