

Certificate of Conformity – AdmaPrint feedstock

This document certifies that we have performed the analysis of the product below conform standards of commercialization

Product: AdmaPrint S130

Description: Silicon oxide containing feedstock for additive manufacturing of ceramic shells.

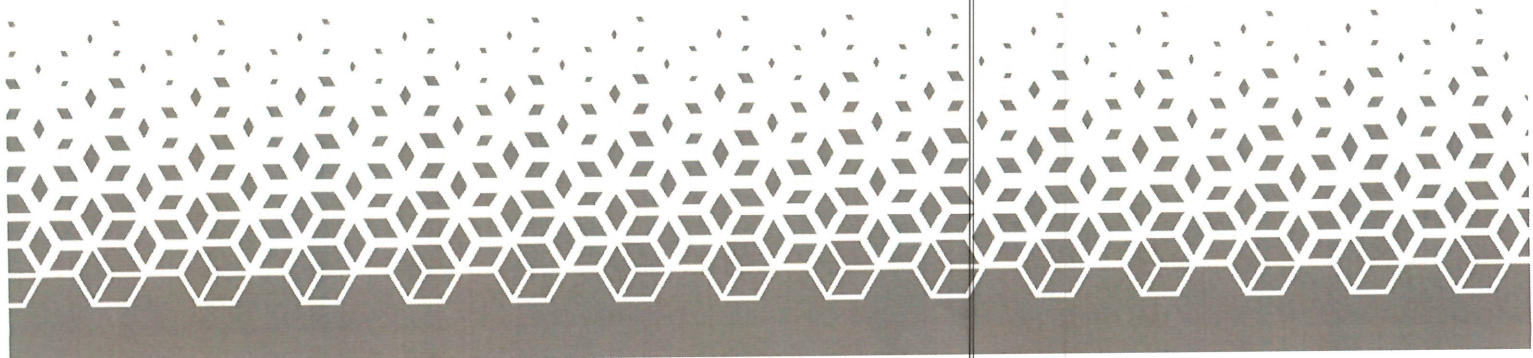
Batch nbr.: S130220531(1)

| | Unit | Value | Specification |
|----------------------------------|--------------------|-------|---------------|
| Depth of curing ⁽¹⁾ : | µm | 326 | 400 ± 80 |
| Viscosity ⁽²⁾ : | P | 104 | 120 ± 20 |
| Specific gravity: | g.cm ⁻³ | 1.73 | 1.75 ± 0.05 |

The recommended lifetime of this feedstock is 3 months.

This certificate of conformity was created on June 8, 2022th,2022.

- (1) This measurement has been performed using light of $\lambda = 405 \text{ nm}$ and $E = 23.2 \text{ mJ}$ after two weeks of shelf storage.
(2) This value corresponds to a relative viscosity, for comparison purposes only. The characterization was performed in a Brookfield DV-E viscometer, spindle 06 at 60 rpm after 60s stabilization.



Safety Data Sheet

Slurry SiO₂ for Admaflex130

According to REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on Classification, labelling and packaging of substances and mixtures.

Version 3; Revision date: 07-05-2021

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: Slurry SiO₂ for Admaflex130

Product code: 513-SI

Relevant identified use: Light curing silica powder containing resin for the production of three dimensional silica components.

Manufacturer: Admatec Europe B.V.
Hamsterkoog 7
1822 CD Alkmaar
The Netherlands
+31 85 0777 101
info@admateceurope.com
www.admateceurope.com

Emergency Phone: +31(0)85 0777 101 (Admatec – 9.00 – 17.00 (CEST))
911 (US / Canada)
112 (Europe Emergency number)

2. HAZARDS IDENTIFICATION

Emergency overview warning



HAZARD STATEMENTS

| Hazard Statement | Description | Hazard category | Signal word | Hazard Statement |
|------------------|---|-----------------------------------|-------------|------------------|
| H302 | Harmful if swallowed | Acute toxicity,oral | Category 4 | Warning |
| H315 | Causes skin irritation | Skin corrosion/irritation | Category 2 | Warning |
| H317 | May cause an allergic skin reaction | Sensitisation, Skin | Category 1 | Warning |
| H318 | Causes serious eye damage | Serious eye damage/eye irritation | Category 1 | Danger |
| H361 | Suspected of damaging fertility or the unborn child | Reproductive toxicity | Category 2 | Warning |

| | | | | |
|------|---|--|------------|--|
| H401 | Toxic to aquatic life | Hazardous to the aquatic environment, acute hazard | Category 2 | |
| H411 | Toxic to aquatic life with long lasting effects | Hazardous to the aquatic environment, long-term hazard | Category 2 | |

PRECAUTIONARY STATEMENTS – PREVENTION

| | |
|------|--|
| P202 | Do not handle until all safety precautions have been read and understood. |
| P261 | Avoid breathing dust/fume/gas/mist/vapors/spray. |
| P264 | Wash thoroughly after handling. |
| P270 | Do not eat, drink or smoke when using this product. |
| P272 | Contaminated work clothing should not be allowed out of the workplace. |
| P273 | Avoid release to the environment. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |

PRECAUTIONARY STATEMENTS – RESPONSE

| | |
|--------------------|--|
| P362 | Take off contaminated clothing. |
| P363 | Wash contaminated clothing before reuse. |
| P391 | Collect spillage. Hazardous to the aquatic environment. |
| P301 + P312 | IF SWALLOWED: call a POISON CENTER or doctor/physician IF you feel unwell. |
| P303 + P361 | IF ON SKIN: Wash with plenty of soap and water. |
| P333 + P311 | IF SKIN irritation or rash occurs: Call a POISON CENTER or doctor/physician. |
| P337 + P311 | IF EYE irritation persists: Call a POISON CENTER or doctor/physician. |
| P333 + P313 | IF SKIN irritation or rash occurs: Get medical advice/attention. |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P308 + P311 | IF exposed or concerned: Call a POISON CENTER or doctor/physician. |

PRECAUTIONARY STATEMENTS – STORAGE

| | |
|------|--------------------------------------|
| P405 | Store locked up, protect from light. |
|------|--------------------------------------|

PRECAUTIONARY STATEMENTS – DISPOSAL

| | |
|------|--|
| P501 | Dispose of contents/container to hazardous or special waste collection point.. |
|------|--|

ADDITIONAL INFORMATION ON THE LABEL

| | |
|---------|--|
| EUH 208 | Contains diphenyl(2,4,6,-trimethylbenzoyl)phosphine oxide, may cause an allergic reaction. |
|---------|--|

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture

| | | |
|----------------------|--|----------------|
| CAS 84170-74-1 | (OLIGOMER) Neopentylglycol, propoxylated, esters with acrylic acid (>1 < 4,5 mol PO) | >=5 % |
| Regulation 1272/2008 | Skin Sens. 1B; Aquatic Chronic 2; H317, H411 – Warning | |
| CAS 15625-89-5 | 2,2-bis(acryloyloxymethyl)butyl acrylate | < 0.01% |
| Regulation 1272/2008 | Acute Tox.5 (oral); Skin Corr./Irrit. 2; Eye Dam./Irrit. 2A; Skin Sens. 1; Aquatic acute 1; Aquatic Chronic 1; M-factor acute: 1; H319, H315, H303, H317, H400, H410 – Warning | |
| CAS 28961-43-5 | 2Propylidynetrimethanol, ethoxylated, esters with acrylic acid | >=3.9 - <7.8 % |
| Regulation 1272/2008 | Eye-Dam./Irrit. 2; Skin Sens. 1B; H319, H317 – Warning | |

4. FIRST-AID MEASURES

GENERAL ADVICE

Immediately remove contamination on clothing.

INHALATION

If inhaled, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.

EYE CONTACT

In case of eye contact, immediately rinse with clean water for 20-30 minutes. Retract eyelids often. Obtain emergency medical attention.

SKIN CONTACT

Remove contaminated clothing as needed. Wash skin thoroughly with mild soap/water. Flush with lukewarm water for 15 minutes. If sticky, a waterless cleaner may be used.

INGESTION

Ingestion unlikely. However, if ingested, obtain emergency medical attention.

EMERGENCY MEDICAL TREATMENT PROCEDURES

If pain, blinking, tears, or redness continue, patient should contact an ophthalmologist.

5. FIRE-FIGHTING MEASURES

FLASH POINT METHOD

GT 93C/200F

AUTOIGNITION TEMP. METHOD=

N/DA

FLAMMABLE LIMITS (% VOLUME IN AIR)

LOWER: N/DA

UPPER: N/DA

FIRE AND EXPLOSION HAZARDS

High temperatures, inhibitor depletion, accidental impurities, or exposure to radiation or oxidizers may cause spontaneous polymerizing reaction generating heat/pressure. Closed containers may rupture or explode during runaway polymerization.

EXTINGUISHING MEDIA

Dry chemical
CO₂
Water spray
Foam
Water fog

SPECIAL FIREFIGHTING PROCEDURES

Do not enter fire area without proper protection. decomposition products possible. Fight fire from safe distance/protected location. Heat/impurities may increase temperature/build pressure/rupture closed containers, spreading fire, increasing risk of burns/injuries. Water may be ineffective in firefighting due to low solubility. Use water spray/fog for cooling. Pressure relief system may plug with solids, increasing risk of overpressure. Notify authorities if liquid enters sewer/public waters.

6. ACCIDENTAL RELEASE MEASURES

PRECAUTIONS IF MATERIAL IS SPILLED OR RELEASED

Spilled or released material may polymerize and release heat/gases. Extinguish all ignition sources and ventilate area. Wear protective equipment during clean-up. Dike and recover large spill. Soak up small spill with inert solids (such as vermiculite, clay) and sweep/shovel into vented disposal container. Wash spill area with a strong detergent and water solution; rinse with water but minimize water use during clean-up. For spills on water, contain, minimize dispersion and collect. Dispose/report per regulatory requirements.

WASTE DISPOSAL METHODS

Non-contaminated, properly inhibited material is not a RCRA hazardous waste. However, contaminated material/soil/water may be RCRA/OSHA hazardous waste due to potential for internal heat generation. It is the responsibility of the generator to determine at the time of disposal whether the material meets the criteria of a hazardous waste. Comply with all applicable federal, state and local regulations. Use registered transporters. Disposal options include landfilling solids at permitted sites; fuel blending or incinerating liquids. Assure emissions comply with applicable regulations. Dilute aqueous waste may biodegrade; avoid overloading/poisoning plant biomass. Assure effluent complies with applicable regulations.

7. HANDLING AND STORAGE

Avoid spill and contact with skin and eyes. Ensure good ventilation. Avoid inhalation of vapor and spray. Hold the container tightly closed. By handling of this product eye wash fountains and safety showers must be available.

Store product in a cool, dry, ventilated storage with the container tightly closed. The material must be stored under full absence of light.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

RESPIRATORY PROTECTION

If this material is handled at elevated temperature or under mist forming conditions, NIOSH/MSHA approved respiratory protection equipment should be used.

EYE PROTECTION

Eye protection such as chemical splash goggles and/or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor. Contact lenses should not be worn.

SKIN PROTECTION

This material is not expected to cause skin irritation based on available test data. However, skin contact should be avoided to prevent skin sensitization. Wear gloves and protective clothing as needed and practice good personal hygiene. Wash hands and other areas of exposed skin with mild soap and water before eating, drinking, smoking and when leaving work.

ENGINEERING CONTROLS

If handling results in aerosol or vapor generation, local exhaust ventilation is recommended.

OTHER HYGIENIC PRACTICES

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

OTHER WORK PRACTICES

Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before reuse. Shower after work using plenty of soap and water.

9. PHYSICAL & CHEMICAL PROPERTIES

| | |
|----------------------------|-----------------------|
| - APPEARANCE | viscous slurry |
| - COLOR | white – green. |
| - BOILING POINT | ND/A |
| - pH | ND/A |
| - FREEZING POINT | ND/A |
| - DRY POINT | ND/A |
| - VAPOR PRESSURE | negligible |
| - SPECIFIC GRAVITY | 2.9 g/cm ³ |
| - EVAPORATION RATE | negligible |
| - SOLUBILITY IN WATER | 5 – 14 % |
| - PERCENT SOLIDS BY WEIGHT | 65 – 80 % |
| - PERCENT VOLATILE | 0 % |
| - VISCOSITY | ND/A |

10. STABILITY AND REACTIVITY

STABILITY

Stable

CONDITIONS TO AVOID (STABILITY)

High temperatures, localized heat sources (ie, drum or band heaters), oxidizing conditions, freezing conditions, direct sunlight, ultraviolet radiation, inert gas blanketing; strong oxidizers, strong reducers, free radical initiators, inert gases, oxygen scavengers.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS

Acrid smoke-fumes/carbon monoxide/carbon dioxide and perhaps other toxic vapors may be released during a fire involving this product.

HAZARDOUS POLYMERIZATION

May occur.

CONDITIONS TO AVOID (POLYMERIZATION)

Leave appropriate headspace above surface level to provide Oxygen inhibition for best stability.

11. TOXICOLOGICAL INFORMATION

INHALATION

No significant signs or symptoms indicative of any adverse health hazard are expected to occur at standard conditions due to the low volatility of this material. However, aerosols, or vapors which may be generated at elevated processing temperatures, may cause respiratory tract irritation. Symptoms of irritation may include coughing, mucous production and shortness of breath.

EYE CONTACT -- PRIMARY ROUTE

May cause minor eye irritation. Symptoms may include excessive tearing, blinking and redness.

SKIN ABSORPTION -- PRIMARY ROUTE

Extensive/prolonged or repeated exposure to this material can result in significant absorption.

SKIN IRRITATION -- PRIMARY ROUTE

This material is not expected to cause skin irritation based on available test data. Although no appropriate human or animal health effects data is known to exist, this material may cause an allergic skin reaction (sensitization) in susceptible individuals upon repeated exposure.

INGESTION

This material may be a slight health hazard if ingested in large quantities.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

No additional medical information found.

12. ECOLOGICAL INFORMATION

Harmful to aquatic organisms in the water; may cause harmful long-term effects in the aquatic environment.

TOXICITY

NDA

PERSISTENCE AND DEGRADABILITY

NDA

BIOACCUMULATION

Possible

MOBILITY IN THE SOIL

Hardly any

OTHER DETRIMENTAL EFFECTS

NDA

13. DISPOSAL CONSIDERATIONS

PRECAUTIONS IF MATERIAL IS SPILLED OR RELEASED

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It is the responsibility of the generator to determine at the time of disposal whether the material meets the criteria of a hazardous waste.

Comply with all applicable federal, state and local regulations. Use registered transporters. Disposal options include landfilling solids at permitted sites; fuel blending or incinerating liquids. Assure emissions comply with applicable regulations. Dilute aqueous waste may biodegrade; avoid overloading/poisoning plant biomass. Assure effluent complies with applicable regulations.

14. TRANSPORT INFORMATION

Transport over land (ADR/RID)

| | |
|------------------------|---|
| UN number | No dangerous goods w.r.t. these transport regulations |
| Suitable | No dangerous goods w.r.t. these transport regulations |
| Shipping designation | |
| Transport hazard class | No dangerous goods w.r.t. these transport regulations |
| Packing class | No dangerous goods w.r.t. these transport regulations |

Sea transport (IMDG)

| | |
|------------------------|---|
| UN number | No dangerous goods w.r.t. these transport regulations |
| Suitable | No dangerous goods w.r.t. these transport regulations |
| Shipping designation | |
| Transport hazard class | No dangerous goods w.r.t. these transport regulations |
| Packing class | No dangerous goods w.r.t. these transport regulations |

Airfreight

| | |
|------------------------|---|
| UN number | No dangerous goods w.r.t. these transport regulations |
| Suitable | No dangerous goods w.r.t. these transport regulations |
| Shipping designation | |
| Transport hazard class | No dangerous goods w.r.t. these transport regulations |
| Packing class | No dangerous goods w.r.t. these transport regulations |

15. REGULATORY INFORMATION

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

- Directive 2012/18/EU
- Named dangerous substances
- ANNEX I None of the ingredients is listed.
- National regulations:
- Water hazard class: Water hazard class 2: hazardous for water.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

15.3 All chemical substances in this compound are listed, or are exempt from TSCA listing, comply with all applicable rules or orders under TSCA, are on the TSCA inventory, are not in Pre-manufacture Notification (PMN) status, are not bound by any Section 5 Significant New Use Rules or obligations, and are not limited/prohibited on any market uses.

16. OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases;

- H302 Harmful if swallowed.
- H315 Causes skin irritation
- H317 May cause an allergic skin reaction
- H318 Causes serious eye damage
- H361 Suspected of damaging fertility or the unborn child
- H401 Toxic to aquatic life
- H411 Toxic to aquatic life with long lasting effects

