

samaterials.com

SAFETY DATA SHEET

Version 3.0 Revision Date 09/04/2017

| PR 1 | CODUCT AND COMPANY I Product identifiers | DENTIFICATION | | | | | | | | ; |
|---------|--|---|------------|------------|--------------|---------|----|-------|----------|------|
| • | Product name | [:] Titanium car | bide | | | | | | | |
| | and the second second | | | ' | ' | ÷., | | 1 | 1. | |
| | Brand | : SAM | | | | | | | | |
| | CAS-No. | : 12070-08-5 | | | | 14 | | | 14 | |
| 2 | Relevant identified uses | of the substance or m | ixture ar | nd uses | advised a | gainst | | | | |
| | Identified uses | : Laboratory chemi | icals, Ma | nufactur | e of substa | nces | | | | |
| 3 | Details of the supplier o | f the safety data sheet | | : | | | | | | |
| | Company | : Stanford Advance Materials 23661 Birtcher Di Lake Forest, CA | r. | | | 5. 1 | | ' | '. '. | |
| | Telephone Fax | USA : +1 (949) 407-890 : +1 (949) 812-669 | | | e' - | | .: | | | |
| 1 | Emergency telephone n | umber | | | | | | | | |
| | Emergency Phone # | : +1 (949) 407-890 | 4 | | | | | | | |
| HA | ZARDS IDENTIFICATION | | | | | | | | | |
| 1 | Classification of the sub | ostance or mixture | | | | · · . | ' | ' | 1. | |
| | Not a hazardous substand | ce or mixture. | | | | | | | | |
| 2 | GHS Label elements, inc | cluding precautionary | statemen | its | | 1. | | : | 1 | |
| | Not a hazardous substand | ce or mixture. | | | | | | | | |
| 3 | Hazards not otherwise o | classified (HNOC) or no | ot covere | d by GH | IS - none | | | | | |
| cc | MPOSITION/INFORMATIC | ON ON INGREDIENTS | | | 1.1.1 | | | 1.1.1 | | |
| 1 | Substances | | | | | | | | | |
| | Formula Molecular Weight CAS-No. EC-No. | : CTi : 59.88 g/mol : 12070-08-5 : 235-120-4 | | | | | | ' | | |
| | No ingredients are hazard No components need to b | | | icable re | egulations. | · . | .' | | | |
| FIF | RST AID MEASURES | | | | | | | | | |
| 1 | Description of first aid n | neasures | | | | . * * | 1 | | | |
| | If inhaled If breathed in, move perso | on into fresh air. If not bre | eathing, g | give artif | cial respira | ation. | ' | | 1. | |
| | In case of skin contact Wash off with soap and p | lenty of water. | | | | 1. | .: | | | |
| | | | | | | | | | | |
| | | | | | | | | | Page 1 | of 6 |

| 14. 14 | In case of eye contact Flush eyes with water as a precaution. | 1. | | ' | 14 | * | | | | | | | |
|-----------|---|----------|----------------|-------------|------------|-------|--|--|--|--|--|--|--|
| 1. 1. | If swallowed Never give anything by mouth to an unconscious person. Rinse mouth with wa | ter. | .1 | : | 1. 1. | | | | | | | | |
| 4.2 | | | | | | | | | | | | | |
| 4.3 | Indication of any immediate medical attention and special treatment need no data available | led | t. | | | 1 | | | | | | | |
| 5. FIR | EFIGHTING MEASURES | | | | | | | | | | | | |
| 5.1 | Extinguishing media | 1 | | | | | | | | | | | |
| | Suitable extinguishing media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. | 1. | | : | 1. | | | | | | | | |
| 5.2 | Special hazards arising from the substance or mixture Carbon oxides, Titanium/titanium oxides | | | | | | | | | | | | |
| 5.3 | Advice for firefighters Wear self contained breathing apparatus for fire fighting if necessary. | | e ⁿ | : | | : | | | | | | | |
| 5.4 | Further information no data available | · | | | 1. | ' | | | | | | | |
| 6. AC | CIDENTAL RELEASE MEASURES | | | | | | | | | | | | |
| 6.1 | Personal precautions, protective equipment and emergency procedures Avoid dust formation. Avoid breathing vapours, mist or gas. For personal protection see section 8. | 1. | 1 | : | | .: | | | | | | | |
| 6.2 | Environmental precautions Do not let product enter drains. | | e. | | | | | | | | | | |
| 6.3 | Methods and materials for containment and cleaning up Sweep up and shovel. Keep in suitable, closed containers for disposal. | | | | 1 | | | | | | | | |
| 6.4 | Reference to other sections For disposal see section 13. | · . | | | · . | | | | | | | | |
| 7. HA | NDLING AND STORAGE | · . | | | · . | .:- | | | | | | | |
| 7.1 | Precautions for safe handling Provide appropriate exhaust ventilation at places where dust is formed.Normal For precautions see section 2.2. | measu | ires for pre | ventive fir | e protec | tion. | | | | | | | |
| 7.2 | Conditions for safe storage, including any incompatibilities Keep container tightly closed in a dry and well-ventilated place. | . * * | t. | | | | | | | | | | |
| 1. | Keep in a dry place. | 1. | | | 1. 1. | | | | | | | | |
| 7.3 | Specific end use(s) Apart from the uses mentioned in section 1.2 no other specific uses are stipula | ted | | | | | | | | | | | |
| 8. EX | POSURE CONTROLS/PERSONAL PROTECTION | · . | | | | . ' | | | | | | | |
| 8.1 | Control parameters | | | | | | | | | | | | |
| | Components with workplace control parameters Contains no substances with occupational exposure limit values. | | e ^r | ; • • | | : | | | | | | | |
| 8.2 | Exposure controls | | | | | | | | | | | | |
| | Appropriate engineering controls General industrial hygiene practice. | 14. 1 | | * | 1. | ' | | | | | | | |
| | uter at the state of the state | 14. 1 | .÷ | : | 14. 14. | .1 | | | | | | | |

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

| 9.1 | Information on basic physi | cal and chemical pr | | | | | | | | |
|----------|--|------------------------------|----------|--------------|------------|-----|---|-------|----|-----|
| | a) Appearance | Form: powder Colour: grey | ı | | | I | | | I | |
| 14 | b) Odour | no data available | 1. 1. | | ' | 1 | | | 14 | ' |
| | c) Odour Threshold | no data available | | | | | | | | |
| 1. | d) pH | no data available | · | | | · . | | | 1. | |
| | e) Melting point/freezing point | Melting point/range | : 3,140 | °C (5,684 °I | =) | | | | | |
| | f) Initial boiling point and boiling range | 4,820 °C (8,708 °F) |) | : | 1 1 1 1 | | : | : • • | | : |
| | g) Flash point | no data available | | | | | | | | |
| 1. | h) Evapouration rate | no data available | | | | ÷., | | | 1. | ' |
| | i) Flammability (solid, gas) | no data available | | | | | | | | |
| 1. 1. | j) Upper/lower flammability or | no data available | | .: | | | | : | | . 1 |

| | 1 | | 1 | , | | | | | | |
|--------------------|---|---------------------------------------|------------|----------------|------------------|------------|----|-----|--------|----------|
| 14. 14. | explosive limits | at at | 1. 1. | ¹ | · · ¹ | 14. 14. | ' | | | |
| | k) Vapour pressure | no data available | | | | | | | | |
| 14 | l) Vapour density | no data available | 14 | | | ÷., | .1 | 1 | 14 | . 1 |
| | m) Relative density | 4.93 g/mL at 25 °C | C (77 °F |) | | | | | | |
| | n) Water solubility | no data available | | | | | | | | |
| | o) Partition coefficient: n- octanol/water | no data available | | : ¹ | | | ÷. | | | ľ |
| 1. | p) Auto-ignition temperature | no data available | 1. | ¹ | ¹ | 1. | | | | |
| · | q) Decomposition temperature | no data available | · | | | · | .: | | · | .: |
| | r) Viscosity | no data available | | | | | | | | |
| | s) Explosive properties | no data available | | | | | | | | |
| | t) Oxidizing properties | no data available | | | : • • | | | | | |
| 9.2 | Other safety information no data available | , | , | , | | , | | | | |
| 10. S | TABILITY AND REACTIVITY | · · · · · · · · · · · · · · · · · · · | <u>'</u> , | | | | | | · . | <u> </u> |
| 10.1 | Reactivity no data available | | · | | | · | | | | |
| 10.2 | Chemical stability Stable under recommended | storage conditions. | | | | | | | | |
| 10.3 | Possibility of hazardous re no data available | actions | | : | | | : | | | |
| 10.4 | Conditions to avoid no data available | ant ant | · | | | · | | | 5. j | ' |
| 10.5 | Incompatible materials Strong oxidizing agents, acid | ls, Bases | | | | | | | | |
| 10.6 | Hazardous decomposition Other decomposition product In the event of fire: see section | ts - no data available |) | .: | | | .: | | | |
| 11. T (| OXICOLOGICAL INFORMATI | ION, | | | | | | | | |
| 11.1 | Information on toxicologic | | | | | | i | | | |
| | Acute toxicity no data available | | 1. | | | | | | | ' |
| | Inhalation: no data available | | | | | | | | | |
| 14 | Dermal: no data available | | ÷., | | | ÷., | | 1 | ÷., | .1 |
| | no data available | | | | | | | | | |
| | Skin corrosion/irritation no data available | | | | | | | | | . ' |
| | Serious eye damage/eye ir no data available | ritation | 1 | r. | | , | | | | |
| 14. 1 | Respiratory or skin sensiti no data available | sation | 1. 1. | | 1.1 | 14. 1 | | 1.1 | 14 | ' |
| 14. 14 | Germ cell mutagenicity no data available | | | | | 1. | 1 | e e | 1 | |
| | | | | | | | | | Page 4 | of 6 |

| 1. 1. | Carcinog | enicity | | | 1. 1. | ¹ | | 1. 1. | ¹ | | 1. 1. | |
|------------------|---------------------------------|------------------------------------|-------------|--------------|-------------|--------------|-----------------|-----------|--------------|----------------|----------|----------------|
| | IARC: | No component probable, possi | | | | | | qual to 0 | .1% is ide | ntified as | | |
| | ACGIH: | No component carcinogen or p | | | | | than or ea | qual to 0 | .1% is ide | ntified as a | | . ' |
| | NTP: | No component known or antici | | | | els greatei | than or ea | qual to 0 | 1% is ide | ntified as a | | |
| | OSHA: | No component carcinogen or p | | | | | than or ea | qual to 0 | 1% is ide | ntified as a | | |
| · · . | Reproduc no data av | tive toxicity | ' | | | ' | | | | | · · · | ' |
| ÷., | no data av | ailable | .: | | · . | .: | | · | | | · | .: |
| | Specific t ano data av | arget organ toxi vailable | city - sing | le exposu | ire | | | | | | | |
| | Specific t no data av | arget organ toxi ailable | city - repe | ated expo | osure | : | 111 | | ÷ | 111 | | ÷. |
| · | Aspiration | | | | · . | ' | | · . | | | · | |
| | | I Information lot available | | | | | | ı | | | | |
| 12. E | | | , ' J | | | . ' | | · · | . ' | | | . ' |
| 12.1 | Toxicity no data av | ailable | | | | | | | | | | |
| 12.2 | | ce and degradat | oility | | | : | | | | | | ÷ |
| 12.3 | Bioaccum no data av | ulative potentia ailable | ' | ¹ | | | 1. ¹ | | | | | |
| 12.4 | Mobility i no data av | | .: | e l' | 1. | .: | : | 1. | .: | | ÷., | .1 |
| 12.5 | | f PBT and vPvB assessment not | | | al safety a | assessme | nt not requ | iired/not | conducted | b | | |
| 12.6 | Other adv | verse effects | :1 | | | : | | | : | 1 - 1 - 1 1 | | ÷. |
| 13 D | | ONSIDERATION | IS . | | 1 | | | | | | | |
| 13.1 | | atment methods | | ' | | | ' | · . | ' | | 1. | |
| | Product | lus and non-recyc | | tions to a l | icensed | disposal c | ompany. | ÷., | .1 | | 1. 1. | .: |
| | | ated packaging | ıct. | | | - | | | | | | |
| 14. T | RANSPORT | | | 1.1.1 | | | | | | | | |
| | DOT (US) Not danger | rous goods | | | | | ' | | | | | |
| · . | IMDG Not dange | rous goods | | | | | | | | | · . | |
| 1. | not dangel | | .) | | 14. 14. | .: | 1 | | .: | | 1. 1. | , ¹ |

. . .

IATA

Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

| Titanium carbide | | CAS-No. 12070-08-5 | Revisio | n Date |
|-------------------------------------|--|-----------------------|---------|--------|
| New Jersey Right To Know Components | | 111 | | 111 |
| | | CAS-No. | Revisio | n Date |
| Titanium carbide | | 12070-08-5 | | |

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

| HMIS Rating Health hazard: | 0 | | | | | | | | : |
|--|-------------|----|-------|----|-------|-----|-------|----------|---|
| Chronic Health Hazard: Flammability: Physical Hazard | 0 | .' | | Т. | ' | · . | ' | 'н. Т | ' |
| NFPA Rating Health hazard: Fire Hazard: Reactivity Hazard: | 0 0 0 | ; | a' la | | a' la | 14. | a' - | · . | |

Further information

This material safety data sheet is offered solely for your information, consideration, and investigation. Stanford Advanced Materials provides no warranties, either express or implied, and assumes no responsibility for the accuracy or completeness of the data contained herein.