1. Identification

Product identifier        Nukote PA II, A-Side (Clear)
Other means of identification
  Product code          70-8082FF00120
  Recommended use       Coating application.
  Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Supplier
  Company name          Nukote Coating Systems International
  Address               4730 Consulate Plaza Dr.
                         Suite 100
                         Houston, TX 77032
  Telephone             832-770-7100
  Email                 SDS@nukoteglobal.com
  Emergency Phone Number Chemtrec: 800-424-9300 (Account: CCN16118) or International: 703-527-3887 (Account: CCN16118)

2. Hazard(s) identification

Physical hazards        Not classified.
Health hazards
  Acute toxicity, inhalation          Category 4
  Skin corrosion/irritation           Category 2
  Serious eye damage/eye irritation   Category 2A
  Sensitization, respiratory          Category 1
  Sensitization, skin                 Category 1
  Specific target organ toxicity, single exposure Category 3 respiratory tract irritation

OSHA defined hazards     Not classified.

Label elements

Signal word              Danger
Hazard statement         Harmful if inhaled. Causes skin irritation. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. May cause respiratory irritation.

Precautionary statement

Prevention
  Avoid breathing mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection.

Response
  If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center/doctor.

Storage
  Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal
  Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.
3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexamethylene diisocyanate polymer</td>
<td>28182-81-2</td>
<td>35 - 64</td>
</tr>
<tr>
<td>Aliphatic polyisocyanate</td>
<td>Not reported</td>
<td>18 - 32</td>
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<tr>
<td>4-Methyl-1,3-dioxolan-2-one</td>
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<td>Hexamethylene-1, 6-diisocyanate</td>
<td>822-06-0</td>
<td>Trace</td>
</tr>
</tbody>
</table>

Composition comments: All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. For more detailed chemical composition, refer to the certificate of analysis.

4. First-aid measures

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Skin contact: Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Eye contact: Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn’t get into the lungs. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed: Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Indication of immediate medical attention and special treatment needed: Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information: If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures


Unsuitable extinguishing media: Water. Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the chemical: During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions: Use water spray to cool unopened containers. Move containers from fire area if you can do so without risk.

Specific methods: Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards: No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Avoid inhalation of vapors and spray mists. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wear appropriate protective equipment and clothing during clean-up. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up

This product is miscible in water. Stop the flow of material, if this is without risk.

Cover container, but do not seal, and remove from work area. Prepare a decontamination solution of 2.0% liquid detergent and 3-8% concentrated ammonium hydroxide in water (5-10% sodium carbonate may be substituted for the ammonium hydroxide). Treat the spill area with the decontamination solution, using about 10 parts of the solution for each part of the spill, and allow it to react for at least 15 minutes. Carbon dioxide will be evolved, leaving insoluble polyureas. Residues from spill cleanup, even when treated as described may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. Slowly stir the isocyanate waste into the decontamination solution described above. Let stand for 48 hours, allowing the evolved carbon dioxide to vent away, residues may still be subject to RCRA storage and disposal requirements. Dispose off in compliance with all relevant local, state, and federal laws and regulations regarding treatment.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Use only outdoors or in a well-ventilated area. Avoid inhalation of vapors and spray mists. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store in a well-ventilated place. Protect from heat and direct sunlight. Store away from incompatible materials (see Section 10 of the SDS). Protect against physical damage. Protect from moisture. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Use explosion-proof ventilation equipment. Take precautionary measures against static discharges. Ground/bond container and equipment. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

8. Exposure controls/personal protection

Occupational exposure limits

**US. ACGIH Threshold Limit Values**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexamethylene-1, 6-diisocyanate (CAS 822-06-0)</td>
<td>TWA</td>
<td>0.005 ppm</td>
</tr>
</tbody>
</table>

**US. NIOSH: Pocket Guide to Chemical Hazards**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexamethylene-1, 6-diisocyanate (CAS 822-06-0)</td>
<td>Ceiling</td>
<td>0.14 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.02 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.035 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.005 ppm</td>
</tr>
</tbody>
</table>

**Biological limit values**

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
<th>Determinant</th>
<th>Specimen</th>
<th>Sampling Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexamethylene-1, 6-diisocyanate (CAS 822-06-0)</td>
<td>15 µg/g</td>
<td>Hexamethylene diamine (with hydrolysis)</td>
<td>Creatinine in urine</td>
<td>*</td>
</tr>
</tbody>
</table>

* - For sampling details, please see the source document.

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. General ventilation normally adequate. Provide eyewash station. Eye wash fountain and emergency showers are recommended.

Individual protection measures, such as personal protective equipment

**Eye/face protection**

Wear safety glasses, sealed eyewear, unvented tight fitting goggles or face shield depending on hazard of task.
Skin protection
Hand protection
Wear appropriate chemical resistant gloves. Neoprene, nitrile, polyethylene or PVC. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Suitable gloves can be recommended by the glove supplier. Contaminated gloves should be replaced.

Skin protection
Other
Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. Use of impervious boots is recommended.

Respiratory protection
Chemical respirator with organic vapor cartridge and full facepiece.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations
Observe any medical surveillance requirements. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance
Physical state
Liquid.
Form
Thin clear liquid.
Color
Clear.
Odor
Mild chemical.
Odor threshold
Not available.
pH
Not available.
Melting point/freezing point
Not available.
Initial boiling point and boiling range
460 °F (237.78 °C)
Flash point
266.0 °F (130.0 °C)
Evaporation rate
Slower than ether.
Flammability (solid, gas)
Not applicable.

Upper/lower flammability or explosive limits
Flammability limit - lower
Not applicable.
Flammability limit - upper
Not applicable.

Vapor pressure
Not available.

Vapor density
Heavier than air.
Relative density
1.14

Solubility(ies)
Solubility (water)
Reacts with water.
Partition coefficient
Not available.
(n-octanol/water)

Auto-ignition temperature
Not available.

Decomposition temperature
Not available.

Viscosity
Not available.

Other information
Density
9.54 lb/gal
Explosive properties
Not explosive.
Oxidizing properties
Not oxidizing.
VOC
0 lb/gal

10. Stability and reactivity

Reactivity
The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability
Material is stable under normal conditions.
Will not occur under normal conditions but under high temperatures in the presence of alkalis, tertiary amines, and metal compounds will accelerate polymerization. Possible evolution of carbon dioxide gas may rupture closed containers.

Contact with incompatible materials. Heat, sparks, flames, elevated temperatures. Moisture.

This product will react with any material containing active hydrogens, such as water, alcohol, ammonia, amines, alkalis and acids, the reaction with water is slow under 50°C, but is accelerated at higher temperature and in the presence of alkalis, tertiary amines, and metal compounds. Some reactions can be violent. Material can react with strong oxidizing agents.


### 11. Toxicological information

#### Information on likely routes of exposure

**Inhalation**
Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause irritation to the respiratory system.

**Skin contact**
Causes skin irritation. May cause an allergic skin reaction. Isocyanates react with skin protein and moisture and can cause irritation. Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and, in some cases, skin sensitization. Individuals who have developed a skin sensitization can develop these symptoms as a result of contact with very small amounts of liquid material or as a result of exposure to vapor.

**Eye contact**
Causes serious eye irritation.

**Ingestion**
May cause discomfort if swallowed.

#### Symptoms related to the physical, chemical and toxicological characteristics

**Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.**

#### Information on toxicological effects

**Acute toxicity**
Harmful if inhaled.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Methyl-1,3-dioxolan-2-one (CAS 108-32-7)</td>
<td>Rabbit</td>
<td>LD50 &gt; 2000 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Rat</td>
<td>LC50 &gt; 5 mg/l</td>
</tr>
<tr>
<td></td>
<td>Rat</td>
<td>Oral LD50 &gt; 5000 mg/kg</td>
</tr>
</tbody>
</table>

Hexamethylene diisocyanate polymer (CAS 28182-81-2)

| Acute | Inhalation | LC50 | 4.62 mg/l, 4 h |

**Skin corrosion/irritation**
Causes skin irritation.

**Serious eye damage/eye irritation**
Causes serious eye irritation.

**Respiratory or skin sensitization**
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Respiratory sensitization**
May cause an allergic skin reaction.

**Germ cell mutagenicity**
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity**
Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity
Not listed.

NTP Report on Carcinogens
Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not regulated.
Reproductive toxicity
This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
Not classified.

Aspiration hazard
Not an aspiration hazard.

Chronic effects
Persons already sensitized to diisocyanates may develop allergic reactions when using this product.

12. Ecological information

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability
No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential
No data available for this product.

Mobility in soil
The product is miscible with water. May spread in water systems.

Other adverse effects
This product contains one or more substances identified as hazardous air pollutants (HAPs) per the US Federal Clean Air Act (see section 15).

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations. When this product as supplied is to be discarded as waste, it may meet the definition of a RCRA waste under 40 CFR 261.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. DO NOT pressurize, cut, heat, or weld containers; they may explode and cause injury or death. Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

14. Transport information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not established.

15. Regulatory information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)
Hexamethylene-1, 6-diisocyanate (CAS 822-06-0) Listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not regulated.
SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical

classified hazard categories
Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Hexamethylene-1, 6-diisocyanate (CAS 822-06-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations
US. Massachusetts RTK - Substance List
Hexamethylene-1, 6-diisocyanate (CAS 822-06-0)

US. New Jersey Worker and Community Right-to-Know Act
Hexamethylene-1, 6-diisocyanate (CAS 822-06-0)

US. Pennsylvania Worker and Community Right-to-Know Law
Not listed.

US. Rhode Island RTK
Not regulated.

California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))
Hexamethylene-1, 6-diisocyanate (CAS 822-06-0)

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Taiwan Chemical Substance Inventory (TCSI)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A “Yes” indicates this product complies with the inventory requirements administered by the governing country(s).
A “No” indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).
16. Other information, including date of preparation or last revision

Issue date: 19-April-2018
Revision date: -
Version #: 01

HMIS® ratings
- Health: 2*
  - Flammability: 1
  - Physical hazard: 0

NFPA ratings

Disclaimer: NuKote Coating Systems cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.
1. Identification

Product identifier: Nukote PA II, A-Side (Pigmented)

Other means of identification:
- Product code: 71-8082FF00120
- Recommended use: Coating application.
- Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information

Supplier:
- Company name: Nukote Coating Systems International
- Address: 4730 Consulate Plaza Dr.
- Suite 100
- Houston, TX. 77032
- Telephone: 832-770-7100
- Email: SDS@nukoteglobal.com
- Emergency Phone Number: Chemtrec: 800-424-9300 (Account: CCN16118) or International: 703-527-3887 (Account: CCN16118)

2. Hazard(s) identification

Physical hazards: Not classified.

Health hazards:
- Acute toxicity, inhalation: Category 4
- Skin corrosion/irritation: Category 2
- Serious eye damage/eye irritation: Category 2A
- Sensitization, respiratory: Category 1
- Sensitization, skin: Category 1
- Specific target organ toxicity, single exposure: Category 3 respiratory tract irritation

OSHA defined hazards: Not classified.

Label elements

Signal word: Danger

Hazard statement: Harmful if inhaled. Causes skin irritation. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. May cause respiratory irritation.

Precautionary statement

Prevention: Avoid breathing mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection.

Response: If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center/doctor.

Storage: Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): None known.
3. Composition/information on ingredients

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<td>Trace</td>
</tr>
</tbody>
</table>

Composition comments: All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. For more detailed chemical composition, refer to the certificate of analysis.

4. First-aid measures

**Inhalation**
Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

**Skin contact**
Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

**Eye contact**
Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention if symptoms occur.

**Ingestion**
Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Most important symptoms/effects, acute and delayed
Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

5. Fire-fighting measures

**Suitable extinguishing media**
Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

**Unsuitable extinguishing media**
Water. Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
Use water spray to cool unopened containers. Move containers from fire area if you can do so without risk.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
No unusual fire or explosion hazards noted.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Avoid inhalation of vapors and spray mists. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wear appropriate protective equipment and clothing during clean-up. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up

This product is miscible in water. Stop the flow of material, if this is without risk.

Cover container, but do not seal, and remove from work area. Prepare a decontamination solution of 2.0% liquid detergent and 3-8% concentrated ammonium hydroxide in water (5-10% sodium carbonate may be substituted for the ammonium hydroxide). Treat the spill area with the decontamination solution, using about 10 parts of the solution for each part of the spill, and allow it to react for at least 15 minutes. Carbon dioxide will be evolved, leaving insoluble polyureas. Residues from spill cleanup, even when treated as described may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. Slowly stir the isocyanate waste into the decontamination solution described above. Let stand for 48 hours, allowing the evolved carbon dioxide to vent away, residues may still be subject to RCRA storage and disposal requirements. Dispose off in compliance with all relevant local, state, and federal laws and regulations regarding treatment.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling
Use only outdoors or in a well-ventilated area. Avoid inhalation of vapors and spray mists. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Store locked up. Store in original tightly closed container. Store in a well-ventilated place. Protect from heat and direct sunlight. Store away from incompatible materials (see Section 10 of the SDS). Protect against physical damage. Protect from moisture. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Use explosion-proof ventilation equipment. Take precautionary measures against static discharges. Ground/bond container and equipment. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

8. Exposure controls/personal protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>US. ACGIH Threshold Limit Values</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
<td>Hexamethylene-1, 6-diisocyanate (CAS 822-06-0) TWA</td>
<td>0.005 ppm</td>
</tr>
</tbody>
</table>

| US. NIOSH: Pocket Guide to Chemical Hazards | Type | Value |
| Components | Hexamethylene-1, 6-diisocyanate (CAS 822-06-0) Ceiling | 0.14 mg/m³ |
| | TWA | 0.02 ppm |
| | | 0.035 mg/m³ |
| | | 0.005 ppm |

Biological limit values

| ACGIH Biological Exposure Indices | Value | Determinant | Specimen | Sampling Time |
| Components | Hexamethylene-1, 6-diisocyanate (CAS 822-06-0) 15 µg/g | Hexamethylene diamine (with hydrolysis) | Creatinine in urine | * |

* - For sampling details, please see the source document.

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. General ventilation normally adequate. Provide eyewash station. Eye wash fountain and emergency showers are recommended.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses, sealed eyewear, unvented tight fitting goggles or face shield depending on hazard of task.
Skin protection
Hand protection
Wear appropriate chemical resistant gloves. Neoprene, nitrile, polyethylene or PVC. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Suitable gloves can be recommended by the glove supplier. Contaminated gloves should be replaced.

Skin protection
Other
Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. Use of impervious boots is recommended.

Respiratory protection
Chemical respirator with organic vapor cartridge and full facepiece.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations
Observe any medical surveillance requirements. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance
Physical state
Liquid.
Form
Thin clear liquid.
Color
Clear.
Odor
Mild chemical.
Odor threshold
Not available.
pH
Not available.
Melting point/freezing point
Not available.
Initial boiling point and boiling range
460 °F (237.78 °C)
Flash point
266.0 °F (130.0 °C)
Evaporation rate
Slower than ether.
Flammability (solid, gas)
Not applicable.

Upper/lower flammability or explosive limits
Flammability limit - lower (%)
Not applicable.
Flammability limit - upper (%)
Not applicable.

Vapor pressure
Not available.
Vapor density
Heavier than air.
Relative density
1.14

Solubility(ies)
Solubility (water)
Reacts with water.
Partition coefficient (n-octanol/water)
Not available.

Auto-ignition temperature
Not available.
Decomposition temperature
Not available.
Viscosity
Not available.

Other information
Density
9.54 lb/gal
Explosive properties
Not explosive.
Oxidizing properties
Not oxidizing.
VOC
0 lb/gal

10. Stability and reactivity

Reactivity
The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability
Material is stable under normal conditions.
Possibility of hazardous reactions
Will not occur under normal conditions but under high temperatures in the presence of alkalis, tertiary amines, and metal compounds will accelerate polymerization. Possible evolution of carbon dioxide gas may rupture closed containers.

Conditions to avoid
Contact with incompatible materials. Heat, sparks, flames, elevated temperatures. Moisture.

Incompatible materials
This product will react with any material containing active hydrogens, such as water, alcohol, ammonia, amines, alkalis and acids, the reaction with water is slow under 50°C, but is accelerated at higher temperature and in the presence of alkalis, tertiary amines, and metal compounds. Some reactions can be violent. Material can react with strong oxidizing agents.

Hazardous decomposition products

11. Toxicological information
Information on likely routes of exposure
Inhalation
Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause irritation to the respiratory system.

Skin contact
Causes skin irritation. May cause an allergic skin reaction. Isocyanates react with skin protein and moisture and can cause irritation. Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and, in some cases, skin sensitization. Individuals who have developed a skin sensitization can develop these symptoms as a result of contact with very small amounts of liquid material or as a result of exposure to vapor.

Eye contact
Causes serious eye irritation.

Ingestion
May cause discomfort if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics
Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects
Acute toxicity
Harmful if inhaled.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Methyl-1,3-dioxolan-2-one (CAS 108-32-7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>Rabbit</td>
<td>&gt; 2000 mg/kg</td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
<td>&gt; 2000 mg/kg</td>
</tr>
<tr>
<td>LC50</td>
<td>Rat</td>
<td>&gt; 5 mg/l</td>
</tr>
<tr>
<td><strong>Oral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>&gt; 5000 mg/kg</td>
</tr>
<tr>
<td><strong>Hexamethylene diisocyanate polymer (CAS 28182-81-2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td>Rat</td>
<td>4.62 mg/l, 4 h</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Causes skin irritation.

Serious eye damage/eye irritation
Causes serious eye irritation.

Respiratory or skin sensitization
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin sensitization
May cause an allergic skin reaction.

Germ cell mutagenicity
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity
Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity
Not listed.

NTP Report on Carcinogens
Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not regulated.
This product is not expected to cause reproductive or developmental effects.

May cause respiratory irritation.

Not classified.

Not an aspiration hazard.

Persons already sensitized to diisocyanates may develop allergic reactions when using this product.

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

No data is available on the degradability of any ingredients in the mixture.

The product is miscible with water. May spread in water systems.

This product contains one or more substances identified as hazardous air pollutants (HAPs) per the US Federal Clean Air Act (see section 15).

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations. When this product as supplied is to be discarded as waste, it may meet the definition of a RCRA waste under 40 CFR 261.

Dispose in accordance with all applicable regulations.

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. DO NOT pressurize, cut, heat, or weld containers; they may explode and cause injury or death. Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Not regulated as dangerous goods.

Not regulated as dangerous goods.

Not regulated as dangerous goods.

Not established.

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Not regulated.

Hexamethylene-1, 6-diisocyanate (CAS 822-06-0) Listed.

Not regulated.

Not regulated.

Nukote PA II, A-Side (Pigmented) SDS US 943529     Version #: 01     Revision date: -     Issue date: 19-April-2018
Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
Classified hazard categories
Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Hexamethylene-1, 6-diisocyanate (CAS 822-06-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations

US. Massachusetts RTK - Substance List
Hexamethylene-1, 6-diisocyanate (CAS 822-06-0)

US. New Jersey Worker and Community Right-to-Know Act
Hexamethylene-1, 6-diisocyanate (CAS 822-06-0)

US. Pennsylvania Worker and Community Right-to-Know Law
Not listed.

US. Rhode Island RTK
Not regulated.

California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))
Hexamethylene-1, 6-diisocyanate (CAS 822-06-0)

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDLS)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Taiwan Chemical Substance Inventory (TCSI)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A “Yes” indicates this product complies with the inventory requirements administered by the governing country(s). A “No” indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).
16. Other information, including date of preparation or last revision

<table>
<thead>
<tr>
<th>Issue date</th>
<th>19-April-2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision date</td>
<td>-</td>
</tr>
<tr>
<td>Version #</td>
<td>01</td>
</tr>
<tr>
<td>HMIS® ratings</td>
<td>Health: 2*</td>
</tr>
<tr>
<td></td>
<td>Flammability: 1</td>
</tr>
<tr>
<td></td>
<td>Physical hazard: 0</td>
</tr>
</tbody>
</table>

**NFPA ratings**

**Disclaimer**

NuKote Coating Systems cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.
1. Identification

Product identifier: Nukote PA II, B-Side (Clear)

Other means of identification

Product code: 70-8082FF00409

Recommended use: Coating application.

Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information

Supplier

Company name: Nukote Coating Systems International
Address: 4730 Consulate Plaza Dr.
Suite 100
Houston, TX. 77032
Telephone: 832-770-7100
Email: SDS@nukoteglobal.com
Emergency Phone Number: Chemtrec: 800-424-9300 (Account: CCN16118) or International: 703-527-3887 (Account: CCN16118)

2. Hazard(s) identification

Physical hazards: Not classified.

Health hazards

Sensitization, skin: Category 1
Carcinogenicity: Category 1A

Environmental hazards

Hazardous to the aquatic environment, acute hazard: Category 3
Hazardous to the aquatic environment, long-term hazard: Category 3

OSHA defined hazards: Not classified.

Label elements

Signal word: Danger

Hazard statement: May cause an allergic skin reaction. May cause cancer. Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing mist or vapor. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response: If exposed or concerned: Get medical advice/attention. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Storage: Store locked up.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): None known.

Supplemental information: None.
3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspartic acid, N,N’-[methylenebis(2-methyl-4, 1-cyclohexanediyl)]bis-</td>
<td>136210-32-7</td>
<td>37 - 66</td>
</tr>
<tr>
<td>1,1’,4,4’-tetraethyl ester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monoaspartate</td>
<td>Trade Secret</td>
<td>4 - 8</td>
</tr>
<tr>
<td>Diethyl Fumarate</td>
<td>623-91-6</td>
<td>2 - 3</td>
</tr>
<tr>
<td>Silica, Crystalline</td>
<td>14808-60-7</td>
<td>0.3 - 0.5</td>
</tr>
<tr>
<td>4-methyl-1,3-dioxolan-2-one</td>
<td>108-32-7</td>
<td>0.2 - 0.4</td>
</tr>
</tbody>
</table>

Composition comments: All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. For more detailed chemical composition, refer to the certificate of analysis.

4. First-aid measures

**Inhalation**
Move to fresh air. Call a physician if symptoms develop or persist.

**Skin contact**
Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash clothing separately before reuse.

**Eye contact**
Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

**Ingestion**
Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention if symptoms occur.

**Most important symptoms/effects, acute and delayed**
May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.

**Indication of immediate medical attention and special treatment needed**
Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

**General information**
If exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

**Suitable extinguishing media**
Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

**Unsuitable extinguishing media**
Water. Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
Use water spray to cool unopened containers. Move containers from fire area if you can do so without risk.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
No unusual fire or explosion hazards noted.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Avoid breathing mist or vapor. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wear appropriate protective equipment and clothing during clean-up. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Prevent product from entering drains.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

Environmental precautions
Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

Methods and materials for containment and cleaning up

7. Handling and storage
Precautions for safe handling
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Provide adequate ventilation. Should be handled in closed systems, if possible. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash hands thoroughly after handling. Wear appropriate personal protective equipment. Wash contaminated clothing before reuse. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Use explosion-proof ventilation equipment. Take precautionary measures against static discharges. Ground/bond container and equipment. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards. Store locked up. Store in original tightly closed container. Store in a well-ventilated place. Protect from heat and direct sunlight. Protect from moisture. Store away from incompatible materials (see Section 10 of the SDS). Protect against physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

8. Exposure controls/personal protection
Occupational exposure limits

<table>
<thead>
<tr>
<th>US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica, Crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. OSHA Table Z-3 (29 CFR 1910.1000) Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica, Crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. ACGIH Threshold Limit Values Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica, Crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.025 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. NIOSH: Pocket Guide to Chemical Hazards Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
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<td>TWA</td>
<td>0.05 mg/m³</td>
</tr>
</tbody>
</table>

Biological limit values
No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls
Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. General ventilation normally adequate. Provide eyewash station. Eye wash fountain and emergency showers are recommended.

Individual protection measures, such as personal protective equipment
Eye/face protection
Wear safety glasses, sealed eyewear, unvented tight fitting goggles or face shield depending on hazard of task.
Skin protection
Hand protection
Wear appropriate chemical resistant gloves. Neoprene, nitrile, polyethylene or PVC. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Suitable gloves can be recommended by the glove supplier. Contaminated gloves should be replaced.

Skin protection
Other
Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. Use of impervious boots is recommended.

Respiratory protection
Chemical respirator with organic vapor cartridge and full facepiece.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations
Observe any medical surveillance requirements. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance
Physical state
Liquid.
Form
Clear liquid.
Color
Clear.
Odor
Ammonia-like.
Odor threshold
Not available.
pH
Not available.
Melting point/freezing point
Not available.
Initial boiling point and boiling range
586 °F (307.78 °C)
Flash point
200.0 °F (93.3 °C)
Evaporation rate
Not applicable.
Flammability (solid, gas)
Not applicable.

Upper/lower flammability or explosive limits
Flammability limit - lower (%)
Not applicable.
Flammability limit - upper (%)
Not applicable.

Vapor pressure
Not available.
Vapor density
Not available.
Relative density
1.13
Solubility(ies)
Solubility (water)
Not available.
Partition coefficient (n-octanol/water)
Not available.

Auto-ignition temperature
Not available.
Decomposition temperature
Not available.
Viscosity
Not available.

Other information
Density
9.40 lb/gal
Explosive properties
Not explosive.
Oxidizing properties
Not oxidizing.
VOC
0 lb/gal

10. Stability and reactivity

Reactivity
The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability
Material is stable under normal conditions.
Will not occur.

Contact with incompatible materials. Heat, sparks, flames, elevated temperatures. Moisture.

Isocyanates. Strong oxidizing agents.

Organic vapor. Thermal decomposition may produce lower molecular weight organic compounds whose composition have not been characterised.

11. Toxicological information

Information on likely routes of exposure

**Inhalation**
Inhalation of dusts generated by cutting, grinding or crushing the hardened material can result in exposure to crystalline silica. Prolonged inhalation may be harmful.

**Skin contact**
May cause an allergic skin reaction.

**Eye contact**
Direct contact with eyes may cause temporary irritation.

**Ingestion**
May cause discomfort if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics
May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.

Information on toxicological effects

**Acute toxicity**
Not expected to be acutely toxic.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
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</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Rat</td>
<td>&gt; 5 mg/l</td>
</tr>
<tr>
<td><strong>Oral</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>&gt; 5000 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation
Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

**Respiratory sensitization**
Not classified. However: A sensitizing effect on particularly sensitive individuals cannot be excluded. Repeated or prolonged inhalation exposure may cause asthma-like syndrome.

**Skin sensitization**
May cause an allergic skin reaction.

Germ cell mutagenicity
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity
May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity
Silica, Crystalline (CAS 14808-60-7) 1 Carcinogenic to humans.

NTP Report on Carcinogens
Silica, Crystalline (CAS 14808-60-7) Known To Be Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Silica, Crystalline (CAS 14808-60-7) Cancer

Reproductive toxicity
This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure
Not classified.

Specific target organ toxicity - repeated exposure
Not classified.

Aspiration hazard
Not an aspiration hazard.

Chronic effects
Crystalline silica: Overexposure to the respirable dust of crystalline silica (quartz or cristobalite, less than or equal to 5 microns in size) may lead to silicosis in humans, which is a progressive and irreversible lung disease. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.
12. Ecological information

Ecotoxicity
Harmful to aquatic life with long lasting effects.

Persistence and degradability
No data is available on the degradability of any ingredients in the mixture.

Bioaccumulative potential
No data available for this product.

Mobility in soil
No data available.

Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. When this product as supplied is to be discarded as waste, it may meet the definition of a RCRA waste under 40 CFR 261.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. DO NOT pressurize, cut, heat, or weld containers; they may explode and cause injury or death. Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

14. Transport information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not established.

15. Regulatory information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Silica, Crystalline (CAS 14808-60-7) Cancer
lung effects
immune system effects
kidney effects

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
Yes

Classified hazard categories
Respiratory or skin sensitization
Carcinogenicity
SARA 313 (TRI reporting)
Not regulated.

Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.
Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations
US. Massachusetts RTK - Substance List
Silica, Crystalline (CAS 14808-60-7)
US. New Jersey Worker and Community Right-to-Know Act
Silica, Crystalline (CAS 14808-60-7)
US. Pennsylvania Worker and Community Right-to-Know Law
Silica, Crystalline (CAS 14808-60-7)
US. Rhode Island RTK
Silica, Crystalline (CAS 14808-60-7)

California Proposition 65
WARNING: This product can expose you to Silica, Crystalline, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance
Silica, Crystalline (CAS 14808-60-7) Listed: October 1, 1988
US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))
Silica, Crystalline (CAS 14808-60-7)

International Inventories
<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
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</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
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<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
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<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
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<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
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<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
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<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
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<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>No</td>
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<tr>
<td>Taiwan</td>
<td>Taiwan Chemical Substance Inventory (TCSI)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision
Issue date                  19-April-2018
Revision date               -
Version #                   01
HMIS® ratings               Health: 2*
                           Flammability: 1
                           Physical hazard: 0
NFPA ratings

Disclaimer

NuKote Coating Systems cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.
1. Identification

Product identifier: Nukote PA II, B-Side (Pigmented)

Other means of identification:
- Product code: 70-8082FF00118
- Recommended use: Coating application.
- Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information

Supplier
- Company name: Nukote Coating Systems International
- Address: 4730 Consulate Plaza Dr. Suite 100
- Houston, TX. 77032
- Telephone: 832-770-7100
- Email: SDS@nukoteglobal.com
- Emergency Phone Number: Chemtrec: 800-424-9300 (Account: CCN16118) or International: 703-527-3887 (Account: CCN16118)

2. Hazard(s) identification

Physical hazards: Not classified.

Health hazards:
- Sensitization, skin: Category 1
- Carcinogenicity: Category 1A
- Specific target organ toxicity, repeated exposure: Category 2 (lung)

Environmental hazards:
- Hazardous to the aquatic environment, acute hazard: Category 3
- Hazardous to the aquatic environment, long-term hazard: Category 3

OSHA defined hazards: Not classified.

Label elements

Signal word: Danger

Hazard statement: May cause an allergic skin reaction. May cause cancer. May cause damage to organs (lung) through prolonged or repeated exposure. Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response: If exposed or concerned: Get medical advice/attention. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Storage: Store locked up.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): None known.

Supplemental information: None.
3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspartic acid, N,N'-(methylenebis(2-methyl-4, 1-cyclohexanediyl))bis-, 1,1',4,4'-tetraethyl ester</td>
<td>136210-32-7</td>
<td>38 - 67</td>
</tr>
<tr>
<td>Titanium dioxide</td>
<td>13463-67-7</td>
<td>13 - 24</td>
</tr>
<tr>
<td>Monoaspartate</td>
<td>Trade Secret</td>
<td>4 - 8</td>
</tr>
<tr>
<td>Diethyl Fumarate</td>
<td>623-91-6</td>
<td>2 - 3</td>
</tr>
<tr>
<td>Carbon black</td>
<td>1333-86-4</td>
<td>0.8 - 1.4</td>
</tr>
<tr>
<td>Silica, Crystalline</td>
<td>14808-60-7</td>
<td>0.3 - 0.5</td>
</tr>
<tr>
<td>4-methyl-1,3-dioxolan-2-one</td>
<td>108-32-7</td>
<td>0.2 - 0.4</td>
</tr>
</tbody>
</table>

Composition comments

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. For more detailed chemical composition, refer to the certificate of analysis.

4. First-aid measures

Inhalation
Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact
Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash clothing separately before reuse.

Eye contact
Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion
Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn’t get into the lungs. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information
IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media
Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media
Water. Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical
During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions
Use water spray to cool unopened containers. Move containers from fire area if you can do so without risk.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards
No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not breathe mist or vapor. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wear appropriate protective equipment and clothing during clean-up. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up

Prevent product from entering drains.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Provide adequate ventilation. Should be handled in closed systems, if possible. Do not breathe mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash hands thoroughly after handling. Wear appropriate personal protective equipment. Wash contaminated clothing before reuse. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Use explosion-proof ventilation equipment. Take precautionary measures against static discharges. Ground/bond container and equipment. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards. Store locked up. Store in original tightly closed container. Store in a well-ventilated place. Protect from heat and direct sunlight. Protect from moisture. Store away from incompatible materials (see Section 10 of the SDS). Protect against physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

8. Exposure controls/personal protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica, Crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon black (CAS 1333-86-4)</td>
<td>PEL</td>
<td>3.5 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>PEL</td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. OSHA Table Z-3 (29 CFR 1910.1000) Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica, Crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>TWA</td>
<td>2.4 mppcf</td>
<td>Respirable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 mppcf</td>
<td>Total dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mppcf</td>
<td>Respirable fraction.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>US. ACGIH Threshold Limit Values Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon black (CAS 1333-86-4)</td>
<td>TWA</td>
<td>3 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Silica, Crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.025 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Components</td>
<td>Type</td>
<td>Value</td>
<td>Form</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------</td>
<td>----------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Carbon black (CAS 1333-86-4)</td>
<td>TWA</td>
<td>3.5 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Silica, Crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td>Respirable dust.</td>
</tr>
</tbody>
</table>

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls**

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. General ventilation normally adequate. Provide eyewash station. Eye wash fountain and emergency showers are recommended.

**Individual protection measures, such as personal protective equipment**

- **Eye/face protection**
  Wear safety glasses, sealed eyewear, unvented tight fitting goggles or face shield depending on hazard of task.

- **Skin protection**
  - **Hand protection**
    Wear appropriate chemical resistant gloves. Neoprene, nitrile, polyethylene or PVC. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Suitable gloves can be recommended by the glove supplier. Contaminated gloves should be replaced.

- **Skin protection**
  - **Other**
    Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. Use of impervious boots is recommended.

- **Respiratory protection**
  Chemical respirator with organic vapor cartridge and full facepiece.

- **Thermal hazards**
  Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations**

Observe any medical surveillance requirements. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

### 9. Physical and chemical properties

**Appearance**

- **Physical state**
  Liquid.

- **Form**
  Pigmented liquid.

- **Color**
  Pigmented.

- **Odor**
  Ammonia-like.

- **Odor threshold**
  Not available.

- **pH**
  Not available.

- **Melting point/freezing point**
  Not available.

- **Initial boiling point and boiling range**
  586 °F (307.78 °C)

- **Flash point**
  200.0 °F (93.3 °C)

- **Evaporation rate**
  Not available.

- **Flammability (solid, gas)**
  Not applicable.

- **Upper/lower flammability or explosive limits**
  - **Flammability limit - lower (%)**
    Not applicable.
  - **Flammability limit - upper (%)**
    Not applicable.

- **Vapor pressure**
  Not available.

- **Vapor density**
  Not available.

- **Relative density**
  1.3

- **Solubility(ies)**
  Not available.
10. Stability and reactivity

Reactivity
The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability
Material is stable under normal conditions.

Possibility of hazardous reactions
Will not occur.

Conditions to avoid
Contact with incompatible materials. Heat, sparks, flames, elevated temperatures. Moisture.

Incompatible materials
Isocyanates. Strong oxidizing agents.

Hazardous decomposition products
Organic vapor. Thermal decomposition may produce lower molecular weight organic compounds whose composition have not been characterised.

11. Toxicological information

Information on likely routes of exposure

Inhalation
Inhalation of dusts generated by cutting, grinding or crushing the hardened material can result in exposure to crystalline silica. May cause damage to organs through prolonged or repeated exposure by inhalation.

Skin contact
May cause an allergic skin reaction.

Eye contact
Direct contact with eyes may cause temporary irritation.

Ingestion
May cause discomfort if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Information on toxicological effects

Acute toxicity
Not expected to be acutely toxic.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-methyl-1,3-dioxolan-2-one (CAS 108-32-7)</td>
<td></td>
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</tr>
<tr>
<td>Acute</td>
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<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
<td>&gt; 2000 mg/kg</td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
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</tr>
<tr>
<td>LC50</td>
<td>Rat</td>
<td>&gt; 5 mg/l</td>
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<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>&gt; 5000 mg/kg</td>
</tr>
<tr>
<td>Carbon black (CAS 1333-86-4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
<td>&gt; 3000 mg/kg</td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>&gt; 8000 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation
Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization

Respiratory sensitization
Not classified. However: A sensitizing effect on particularly sensitive individuals cannot be excluded. Repeated or prolonged inhalation exposure may cause asthma-like syndrome.

Skin sensitization
May cause an allergic skin reaction.

Germ cell mutagenicity
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity
May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity
Carbon black (CAS 1333-86-4) 2B Possibly carcinogenic to humans.
Silica, Crystalline (CAS 14808-60-7) 1 Carcinogenic to humans.
Titanium dioxide (CAS 13463-67-7) 2B Possibly carcinogenic to humans.

NTP Report on Carcinogens
Silica, Crystalline (CAS 14808-60-7) Known To Be Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Silica, Crystalline (CAS 14808-60-7) Cancer

Reproductive toxicity
This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure
Not classified.

Specific target organ toxicity - repeated exposure
May cause damage to organs (lung) through prolonged or repeated exposure.

Aspiration hazard
Not an aspiration hazard.

Chronic effects
Crystalline silica: Overexposure to the respirable dust of crystalline silica (quartz or cristobalite, less than or equal to 5 microns in size) may lead to silicosis in humans, which is a progressive and irreversible lung disease. Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity
Harmful to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon black (CAS 1333-86-4)</td>
<td></td>
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<tr>
<td>Aquatic</td>
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<td>Acute</td>
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<td></td>
</tr>
<tr>
<td>Fish</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC50</td>
<td>Leuciscus idus</td>
</tr>
</tbody>
</table>

Persistence and degradability
Carbon Black's insolubility in water results in it not being biodegradable in any medium or by biota. It is considered persistent in the natural environment.

Bioaccumulative potential
A relevant bioaccumulation potential of carbon black is not expected based on its insolubility in organic solvents and in water. Furthermore, since the aggregate diameter of carbon black varies between 80 nm and 810 nm, bioaccumulation of particulate carbon black is not likely owing to the large diameter of the solid aggregate particles.

Mobility in soil
No data available.

Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. When this product as supplied is to be discarded as waste, it may meet the definition of a RCRA waste under 40 CFR 261.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging  Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. DO NOT pressurize, cut, heat, or weld containers; they may explode and cause injury or death. Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

14. Transport information

DOT  
Not regulated as dangerous goods.

IATA  
Not regulated as dangerous goods.

IMDG  
Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code  
Not established.

15. Regulatory information

US federal regulations  
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)  
Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)  
Not listed.

SARA 304 Emergency release notification  
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)  
Silica, Crystalline (CAS 14808-60-7)  
Cancer  
lung effects  
immune system effects  
kidney effects

Superfund Amendments and Reauthorization Act of 1986 (SARA)  
SARA 302 Extremely hazardous substance  
Not listed.

SARA 311/312 Hazardous chemical  
Yes  
Classified hazard categories  
Respiratory or skin sensitization  
Carcinogenicity  
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)  
Not regulated.

Other federal regulations  
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List  
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)  
Not regulated.

Safe Drinking Water Act (SDWA)  
Not regulated.

US state regulations  
US. Massachusetts RTK - Substance List  
Carbon black (CAS 1333-86-4)  
Silica, Crystalline (CAS 14808-60-7)  
Titanium dioxide (CAS 13463-67-7)

US. New Jersey Worker and Community Right-to-Know Act  
Carbon black (CAS 1333-86-4)  
Silica, Crystalline (CAS 14808-60-7)  
Titanium dioxide (CAS 13463-67-7)
US. Pennsylvania Worker and Community Right-to-Know Law
Carbon black (CAS 1333-86-4)
Silica, Crystalline (CAS 14808-60-7)
Titanium dioxide (CAS 13463-67-7)

US. Rhode Island RTK
Carbon black (CAS 1333-86-4)
Silica, Crystalline (CAS 14808-60-7)
Titanium dioxide (CAS 13463-67-7)

California Proposition 65
WARNING: This product can expose you to chemicals including Titanium dioxide, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance
Carbon black (CAS 1333-86-4) Listed: February 21, 2003
Silica, Crystalline (CAS 14808-60-7) Listed: October 1, 1988
Titanium dioxide (CAS 13463-67-7) Listed: September 2, 2011

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))
Carbon black (CAS 1333-86-4)
Silica, Crystalline (CAS 14808-60-7)
Titanium dioxide (CAS 13463-67-7)

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
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</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
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</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
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</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
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<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
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</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
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</tr>
<tr>
<td>Taiwan</td>
<td>Taiwan Chemical Substance Inventory (TCSI)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*"A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date: 19-April-2018
Revision date: -
Version #: 01
HMIS® ratings
Health: 2*  
Flammability: 1
Physical hazard: 0

NFPA ratings

Nukote PA II, B-Side (Pigmented)  
943531 Version #: 01 Revision date: - Issue date: 19-April-2018  
SDS US  
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Disclaimer

NuKote Coating Systems cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.