

FLESH PIGMENTS

MSDS

A Permanent Solution



IMPORTANT NOTE:

Glycerin, Alcohol and Water are ingredients in all our pigment formulas. Those specs can be found on our site at www.apermanentsolution.com , in separate documents.



Material Safety Data Sheet

Pigment Ink

TN-3

Brown Velvet

1. Product and Company Identification

Product Name: Pigment Ink
Product Code: TN-3
Company: A Permanent Solution
1038 E. Bastanchury Road #186
Fullerton, CA 92835 USA
www.apermanentsolution.com E-mail: info@apermanentsolution.com
Phone: (714) 441-1900 Fax: (714) 441-1808

2. Hazards Identification

Physical State: Solid.
OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency Overview: No specific hazard.
MAY CAUSE EYES AND SKIN IRRITATION. CANCER HAZARD-CONTAINS MATERIAL WHICH CAN CAUSE CANCER.
Slightly irritating to the eyes and skin. Avoid exposure-obtain special instructions before use. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure. Wash thoroughly after handling.
Potential acute health effects:
Eyes: Slightly irritating to the eyes. This product may irritate eyes upon contact.
Skin: Slightly irritating to the skin.
Inhalation: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
Ingestion: No known significant effects or critical hazards.

3. Composition/Information on Ingredients

Iron Oxide Red C.A.S # 1309-37-1
Talc C.A.S. # 14807-96-6
Barium Sulfate C.A.S. # 7727-43-7

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Magnesite C.A.S. # 546-93-0
Crystalline Silica, Quartz C.A.S. # 14808-60-7
Kaolin Clay C.A.S. # 1332-58-7

There are no additional ingredients which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First Aid Measures

Eye Contact:	Remove contact lenses if present. Thoroughly flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
Skin Contact:	Wash skin with soap and water. Get medical attention if irritation develops.
Inhalation:	Move to fresh air. Get medical attention if irregular breathing occurs.
Ingestion:	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

5. Fire-Fighting Measures

Products of Combustion:	Decomposition products may include the following materials: Carbon dioxide, carbon monoxide, sulfure oxides, metal oxide(s)
Fire-Fighting media and Instructions:	Use an extinguishing agent for the surrounding fire.
Special protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental Release Measures

Personal Precautions:	Keep unnecessary personnel away. Provide adequate ventilation. Use suitable protective equipment (section 8).
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Methods for Cleaning Up:	If emergency personnel are unavailable, carefully scoop up spilled materials and use a non-sparking or explosion proof means to transfer to an appropriated container for disposal by incineration. Avoid creating dusty conditions and prevent wind dispersal.

7. Handling and Storage

Handling:	Do not get in eyes or on skin or clothing. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Avoid breathing dust.
Storage:	Keep container tightly closed. Store in a dry, cool and well-ventilated area. Store in accordance with local regulations.

8. Exposure Controls/Personal Protection

Engineering Measures:	If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.	
Environmental Exposure Controls:	Emissions from ventilation or work process equipment should be checked to ensure they comply with requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.	
Personal Protection:	Safety glasses should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates this is necessary.	
Exposure Limits:	Iron Oxide Red	<p>NIOSH REL (United States, 6/2009). TWA: 5 mg/m³, (as Fe) 10 hour(s). Form: Dust and fumes OSHA PEL 1989 (United States, 3/1989). STEL: 10 ppm, (as Fe) 15 minutes(s). Form: Total particulates ACGIH TLV (United States, 1/2011). TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 10 mg/m³ 8 hour(s). Form: Total dust OSHA PEL (United States, 6/2010). TWA: 10 mg/m³ 8 hour(s).</p>
	Talc	<p>OSHA PEL 1989 (United States, 3/1989). TWA: 2 mg/m³ 8 hour(s). Form: Respirable dust NIOSH REL (United States, 6/2009). TWA: 2 mg/m³ 10 hour(s). Form: Respirable fraction ACGIH TLV (United States, 1/2011). TWA: 01 f/cc 8 hour(s). OSHA PEL Z3 (United States, 9/2005). STEL: 1 f/cc 30 minute(s). Form: not containing asbestos TWA: 20 mppcf 8 hour(s). Form: not containing asbestos TWA: 0.1 f/cc 8 hour(s). STEL: 1 f/cc 30 minute(s).</p>

	<p>TWA: 5 mg/m³ 10 hour(s). Form: Respirable fraction TWA: 10 mg/m³ 10 hour(s). Form: Total dust OSHA PEL (United States, 6/2010). TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³ 8 hour(s). Form: Total dust NIOSH REL (United States, 6/2009). TWA: 5 mg/m³ 10 hour(s). Form: Respirable fraction TWA: 10 mg/m³ 10 hour(s). Form: Total dust OSHA PEL (United States, 6/2010). TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³ 8 hour(s). Form: Total dust OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³ 8 hour(s). Form: Total dust OSHA PEL Z3 (United States, 9/2005). Notes: 10/(SiO₂+2) TWA: 10 mg/m³ 8 hour(s). Form: Respirable OSHA PEL Z3 (United States, 9/2005). Notes: 250/(%SiO₂+5) TWA: 250 mppcf 8 hour(s). Form: Respirable OSHA PEL 1989 (United States, 3/1989). TWA: 0.1 mg/m³, (as quartz) 8 hour(s). Form: Respirable dust ACGIH TLV (United States, 1/2011). TWA: 0.025 mg/m³ 8 hour(s). Form: Respirable fraction NIOSH REL (United States, 6/2009). TWA: 0.05 mg/m³ 10 hour(s). Form: Respirable dust OSHA PEL Z3 (United States, 9/2005). Notes: 30/(%SiO₂+2) TWA: 30 mg/m³ 8 hour(s). Form: Total dust ACGIH TLV (United States, 1/2011). TWA: 2 mg/m³ 8 hour(s). Form: Respirable fraction OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 10 mg/m³ 8 hour(s). Form: Total dust OSHA PEL 1989 (United States, 3/1989). TWA: 0.1 mg/m³, (as quartz) 8 hour(s). Form: Respirable dust NIOSH REL (United States, 6/2009). TWA: 5 mg/m³ 10 hour(s). Form: Respirable fraction TWA: 10 mg/m³ 10 hour(s). Form: Total dust OSHA PEL (United States, 6/2010). TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³ 8 hour(s). Form: Total dust</p>
Magnesite	
Crystalline Silica, Quartz	
Kaolin Clay	

9. Physical and Chemical Properties

Physical State:	Solid
Appearance:	Brown Powder
Flash Point:	Closed cup: 500°C (932°F)

10. Stability and Reactivity

Stability:	The product is stable.
Hazardous Polymerization:	Will not occur.
Hazardous Decomposition Products:	Under normal conditions of storage and use, hazardous decomposition should not be produced.

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11. Toxicological Information

Chronic Effects:	Iron Oxide Red	ACGIH = A4	IARC = 3		
	Talc	ACGIH = A1	IARC = 1		
	Crystalline Silica	ACGIH = A2	IARC = 1	NIOSH = +	NTP=PROVEN.
	Kaolin Clay	ACGIH = A4			

Slightly irritating to the eyes and skin. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure. Wash thoroughly after handling.

Mutagenicity/Teratogenicity: No known significant effects or critical hazards.

Reproductive Toxicity: No known significant effects or critical hazards.

12. Ecological Information

Environmental Effects: No known significant effects or hazards.

Aquatic Ecotoxicity:	Barium Sulfate	Result: Acute EC50 32000 ug/L Fresh water Species: Daphnia-water flea-Daphnia magna Exposure: 48 hours
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13. Disposal Considerations

Waste Disposal:	The generation of waste should be avoided or minimized whenever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
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14. Transport Information

DOT Classification: Refer to the bill of lading for proper shipping information.

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15. Regulatory Information

OSHA/HCS Status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

WHMIS (Canada): Class D-2A: Material causing other toxic effects.

Europe:

This product is not classified according to EU legislation.

16. Other Information

Hazardous Materials Information System (USA):

Health: 1
Flammability: 1
Physical Hazards: 1
Personal Protection: B

National Fire Protection Association (USA):

Health: 1
Flammability: 1
Instability: 1

Date of Revision: May 31, 2012



Material Safety Data Sheet

Pigment Ink

TN-4

Golden Luv-It

17. Product and Company Identification

Product Name:	Pigment Ink
Product Code:	TN-4
Company:	A Permanent Solution 1038 E. Bastanchury Road #186 Fullerton, CA 92835 USA www.apermanentsolution.com E-mail: info@apermanentsolution.com Phone: (714) 441-1900 Fax: (714) 441-1808

18. Hazards Identification

Physical State:	Solid.
OSHA/HCS Status:	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of the product.
Emergency Overview:	NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing.
Potential acute health effects:	
Eyes:	This product may irritate eyes upon contact.
Skin:	No known significant effects or critical hazards.
Inhalation:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
Ingestion:	No known significant effects or critical hazards.

19. Composition/Information on Ingredients

Kowet TI02 3970 C.A.S # 13463-67-7

There are no additional ingredients which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Pigment Ink

TN-4

Golden Luv-It

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20. First Aid Measures

Eye Contact:	Remove contact lenses if present. Thoroughly flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
Skin Contact:	Wash skin with soap and water. Get medical attention if irritation develops.
Inhalation:	Move to fresh air. Get medical attention if irregular breathing occurs.
Ingestion:	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

21. Fire-Fighting Measures

Fire-Fighting media and Instructions:	Use an extinguishing agent for the surrounding fire.
Special protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

22. Accidental Release Measures

Personal Precautions:	Keep unnecessary personnel away. Provide adequate ventilation. Use suitable protective equipment (section 8).
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Methods for Cleaning Up:	If emergency personnel are unavailable, carefully scoop up spilled materials and use a non-sparking or explosion proof means to transfer to an appropriated container for disposal by incineration. Avoid creating dusty conditions and prevent wind dispersal.

23. Handling and Storage

Handling:	Avoid breathing dust.
Storage:	Keep container tightly closed. Store in a dry, cool and well-ventilated area. Store in accordance with local regulations.

24. Exposure Controls/Personal Protection

Engineering Measures:	No special ventilation requirements. Good general ventilation should be
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Environmental Exposure Controls:	local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits. Emissions from ventilation or work process equipment should be checked to ensure they comply with requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.						
<u>Personal Protection:</u>							
Eyes:	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.						
Skin:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.						
Respiratory:	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.						
Hands:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.						
Exposure Limits:	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Kowet TI02 3970</td> <td>ACGIH TLV (United States, 1/2011). TWA: 10 mg/m³ 8 hour(s).</td> </tr> <tr> <td></td> <td>OSHA PEL 1989 (United States, 3/1989). TWA: 10 mg/m³ 8 hour(s). Form: Total dust</td> </tr> <tr> <td></td> <td>OSHA PEL (United States, 6/2010). TWA: 15 mg/m³ 8 hour(s).</td> </tr> </table>	Kowet TI02 3970	ACGIH TLV (United States, 1/2011). TWA: 10 mg/m ³ 8 hour(s).		OSHA PEL 1989 (United States, 3/1989). TWA: 10 mg/m ³ 8 hour(s). Form: Total dust		OSHA PEL (United States, 6/2010). TWA: 15 mg/m ³ 8 hour(s).
Kowet TI02 3970	ACGIH TLV (United States, 1/2011). TWA: 10 mg/m ³ 8 hour(s).						
	OSHA PEL 1989 (United States, 3/1989). TWA: 10 mg/m ³ 8 hour(s). Form: Total dust						
	OSHA PEL (United States, 6/2010). TWA: 15 mg/m ³ 8 hour(s).						

25. Physical and Chemical Properties

Physical State:	Solid
Appearance:	Yellow Powder
Flash Point:	Closed cup: 500°C (932°F)

26. Stability and Reactivity

Stability:	The product is stable.
Hazardous Polymerization:	Under normal conditions of storage and use, hazardous polymerization will not occur.
Hazardous Decomposition Products:	Under normal conditions of storage and use, hazardous decomposition should not be produced.

27. Toxicological Information

Chronic Effects:	Kowet TI02 3970	ACGIH = A4	IARC = 2B	NIOSH = +
Other Toxic Effects on Humans:	No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing.			
Mutagenicity/Teratogenicity:	No known significant effects or critical hazards.			
Reproductive Toxicity:	No known significant effects or critical hazards.			

28. Ecological Information

Environmental Effects:	No known significant effects or hazards.
Aquatic Ecotoxicity:	Slightly toxic to aquatic life.

29. Disposal Considerations

Waste Disposal:	The generation of waste should be avoided or minimized whenever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
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30. Transport Information

DOT Classification:	Refer to the bill of lading for proper shipping information.
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31. Regulatory Information

OSHA/HCS Status:	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.
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Pigment Ink	TN-4	Golden Luv-It	4
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WHMIS (Canada):	Not controlled under WHMIS (Canada).
Europe:	This product is not classified according to EU legislation.

32. Other Information

Hazardous Materials Information System (USA):

Health: 2
Flammability: 1
Physical Hazards: 0
Personal Protection: B

National Fire Protection Association (USA):

Health: 2
Flammability: 1
Instability: 0

Date of Revision: July 5, 2012



Material Safety Data Sheet

Pigment Ink

TN-12

Whitest White

33. Product and Company Identification

Product Name:	Pigment Ink
Product Code:	TN-12
Company:	A Permanent Solution 1038 E. Bastanchury Road #186 Fullerton, CA 92835 USA www.apermanentsolution.com E-mail: info@apermanentsolution.com Phone: (714) 441-1900 Fax: (714) 441-1808

34. Hazards Identification

Physical State:	Solid.
OSHA/HCS Status:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency Overview:	No specific hazard. MAY CAUSE SKIN AND EYE IRRITATION. Slightly irritating to the eyes and skin. Avoid exposure-obtain special instructions before use. Do not breathe vapor or mist. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.
Potential acute health effects:	
Eyes:	Slightly irritating to the eyes. This product may irritate eyes upon contact.
Skin:	Slightly irritating to the skin.
Inhalation:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
Ingestion:	No known significant effects or critical hazards.
Other special considerations:	Titanium dioxide has been characterized by IARC as possible carcinogenic to humans (Group 2B) through inhalation (not ingestion). This classification is based upon animal inhalation studies. Epidemiology studies do not suggest as increased risk of cancer in humans from occupational exposure to titanium dioxide.

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TN-12

Whitest White

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35. Composition/Information on Ingredients

Titanium Dioxide C.A.S # 13463-67-7

Amorphous Silicia C.A.S. # 7631-86-9

Aluminum Hydroxide C.A.S. # 21645-51-2

There are no additional ingredients which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

36. First Aid Measures

Eye Contact:	Remove contact lenses if present. Thoroughly flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
Skin Contact:	Wash skin with soap and water. Get medical attention if irritation develops.
Inhalation:	Move to fresh air. Get medical attention if irregular breathing occurs.
Ingestion:	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

37. Fire-Fighting Measures

Products of combustion:	Decomposition products may include the following materials: metal oxide(s).
Fire-Fighting media and Instructions:	Use an extinguishing agent for the surrounding fire.
Special protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

38. Accidental Release Measures

Personal Precautions:	Keep unnecessary personnel away. Provide adequate ventilation. Use suitable protective equipment (section 8).
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Methods for Cleaning Up:	If emergency personnel are unavailable, carefully scoop up spilled materials and use a non-sparking or explosion-proof means to transfer material to an appropriate container for disposal by incineration. Avoid creating dusty conditions and prevent wind dispersal.

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Whitest White

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39. Handling and Storage

Handling: Do not get in eyes or on skin or clothing. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Avoid breathing dust.

Storage: Keep container tightly closed. Store in a dry, cool and well-ventilated area. Store away from incompatible materials. Store in accordance with local regulations.

40. Exposure Controls/Personal Protection

Engineering Measures: If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory levels.

Particle Size Considerations: titanium dioxide: Fine particles are respirable particles with a primary particle diameter of at least 100 nm. Ultrafine particles are respirable particles with a primary particle diameter of less than 100 nm. The grade of titanium dioxide used as a component in this product is not manufactured to contain ultrafine particles as defined above.

Environmental Exposure Controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Personal Protection:

Eyes: Safety glasses should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

Hands: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Exposure Limits:

Titanium Dioxide	OSHA PEL (United States, 6/2010). TWA: 15 mg/m ³ 8 hour(s). Form: Total dust OSHA PEL 1989 (United States, 3/1989). TWA: 10 mg/m ³ 8 hour(s). Form: Total dust ACGIH TLV (United States, 1/2011). TWA: 10 mg/m ³ 8 hour(s).
Amorphous Silica	NIOSH REL (United States, 6/2009). TWA: 6 mg/m ³ 10 hour(s).
Titanium Dioxide	OSHA PEL 1989 (United States, 3/1989). TWA: 2 mg/m ³ , (as Al) 8 hour(s). NIOSH REL (United States, 6/2009). TWA: 2 mg/m ³ , (as Al) 10 hour(s).

41. Physical and Chemical Properties

Physical State: Solid

Appearance: White Powder
Flash Point: Closed cup: 500°C (932°F)

42. Stability and Reactivity

Stability: The product is stable.
Hazardous Polymerization: Will not occur.
Hazardous Decomposition Products: Under normal conditions of storage and use, hazardous decomposition should not be produced.

43. Toxicological Information

Chronic Effects: Titanium Dioxide ACGIH = A4 IARC = 2B NIOSH = +
Amorphous Silica IARC = 3
Titanium Dioxide has been characterized by IARC as possible carcinogenic to humans (Group 2B) through inhalation (not ingestion). This classification is based upon animal inhalation studies. Epidemiology studies do not suggest an increased risk of cancer in humans from occupational exposure to titanium dioxide. It has not been characterized as a potential carcinogen by either NTP or OSHA. Additionally, the Joint Evaluation Committee on Food Additives (JECFA) has reviewed the safety of titanium dioxide finding no problems for its use in food applications and establishing an acceptable daily intake (ADI) for safe use.

Slightly irritating to the eyes and skin. Avoid exposure-obtain special instructions before use. Do not breathe vapor or mist. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.

Mutagenicity/Teratogenicity: No known significant effects or critical hazards.
Reproductive Toxicity: No known significant effects or critical hazards.

44. Ecological Information

Environmental Effects: No known significant effects or hazards.
Aquatic Ecotoxicity: Slightly toxic to aquatic life.

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45. Disposal Considerations

Waste Disposal: The generation of waste should be avoided or minimized whenever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal

contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

46. Transport Information

DOT Classification: Refer to the bill of lading for proper shipping information.

47. Regulatory Information

OSHA/HCS Status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
WHMIS (Canada): Class D-2A: Material causing other toxic effects.
Europe: This product is not classified according to EU legislation.

48. Other Information

Hazardous Materials Information System (USA):

Health: 1
Flammability: 0
Physical Hazards: 0
Personal Protection: B

National Fire Protection Association (USA):

Health: 1
Flammability: 0
Instability: 0

Date of Revision: May 31, 2012