CLOVER
Innovative Environmental Solutions

Material Safety Data Sheet

SECTION 1 | Chemical Products and Company Identification

Product Name
Product Type
Manufacturer Clover Technologies Group
Telephone 815-431-8100
Address 4200 Columbus St., Ottawa, IL 61350
Date Revised August 15, 2014

SECTION 2 | Composition / Information on Ingredients

	CAS No.	%	OSHA PEL	ACGIH TLV	NIOSH
Hazardous Components					
Carbon black	1333-86-4	7 .0	3.5mg/m^3	3.5mg/m^3	3.5mg/m^3
Non-Hazardous Components					
Polyester resin	39382-25-7	84.0	Not listed	Not listed	Not listed
Iron oxide	1317-61-9	3.0	Not listed	Not listed	Not listed
Polypropylene wax	9010-79-1	2.0	Not listed	Not listed	Not listed
Paraffin Wax*	8002-74-2	2.0	Not listed	Not listed	Not listed
Silica	67762-90-7	2.0	Not listed	Not listed	Not listed

*: See "SECTION16".

SECTION 3 | Hazard Identification

Physical Hazards
This material has no usual fire or explosion hazards but will burn if involved in a fire.
Human Health Effects
Carbon black is reclassified as a group 2B by IARC, but inhalation test using a typical toner showed no association between toner exposure and animal tumors.

Inhalation Minimum irritation to the respiratory track may occur as with exposure to any non-toxic dust.
Skin Powder may cause drying of the skin with repeated or prolonged contact.
Ingestion No adverse effects expected.
Eyes High dust concentrations nay cause irritation.

SECTION 4 | First Aid Measure

Inhalation Remove to fresh air. If effects occur, consult medical personnel.
Skin Wash exposed skin with water and soap.
Ingestion Symptomatic treatment is recommended.
Eyes Flush eyes with water to remove dust.

SECTION 5 | Fire Fighting Measure

Flammable Properties
Flash Point: N.A.(Not Applicable)
Lower Explosive Limit : N.A. Upper Explosive Limit : N.A.

Extinguishing Media

Water fog, foam, CO_2, dry chemical.

Protective Equipment

Wear self-contained breathing apparatus and full protective gear.

SECTION 6 Accidental Release Measures

Personal Precautions

Wear appropriate respiratory protection.

Spill Cleanup Measures

Sweep up or vacuum spilled toner and carefully transfer into a sealed container. Sweep slowly to minimize generation of dust during clean up. If a vacuum is used, the motor should be rated as dust tight. Residue can be removed with soap and water.

Environmental Precautions

Waste material may be dumped or incinerated under conditions, which meet all nation and local laws and regulations.

SECTION 7 Handling and Storage

Handling and Storage

Avoid creating dust. Clean up all spills promptly. Provide general ventilation.
Prevent exposure to high temperature, flames and spark-producing equipment.
Store in a cool place.

SECTION 8 Exposure Controls and Personal Protection

Control parameters

OSHA PEL:TWA

5.0mg/m^3 (Inert of Nuisance Dust : Respirable fraction)
15.0mg/m^3 (Inert of Nuisance Dust : Total dust)

ACGIH TLV:TWA(2005)

3.0mg/m^3 (Particulates Not Otherwise Classified : Respirable Particle Mass)
10.0mg/m^3 (Particulates Not Otherwise Classified : Inhalable Particle Mass)

Respiratory Protection

None required under normal use, however, in dusty atmospheres, use an approved dust respirator.

Skin Protection : None required under normal use.
Eye Protection : None required under normal use.
Hand Protection : None required under normal use.
Protective Clothing : None required under normal use.

SECTION 9 Physical and Chemical Properties

Appearance	: Fine black powder	**Odor**	: Odorless
PH	: N.A.	**Boiling Point**	: N.A.
Melting Point	: No data	**Flash Point**	: N.A.
Evaporation	: N.A.	**Vapor Pressure**	: N.A.
Vapor Density	: N.A.	**Solubility in Water**	: Negligible
Specific Gravity	: ca. 1.30 (H_2O=1)	**Freezing Point**	: N.A.

SECTION 10 Stability and Reactivity

Chemical Stability	:	Stable
Condition to avoid	:	None
Materials to avoid	:	Oxidizing materials
Hazardous decomposition	:	CO, CO_2 and NOx
Hazardous polymerization	:	None

SECTION 11 Toxicological Information

Routes of Exposure	:Inhalation, Ingestion, Eyes and Skin contact
Acute Effects	:See "SECTION 3".
Chronic Effects	: In a study in rats (H.Muhle) by chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the concentration(16mg/m^3) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m^3) exposure group. But no pulmonary changes was reported in the lowest (1mg/m^3) exposure group, the most relevant level to potential human exposures.
Ingestion	: No data available
Mutagenic Effects (Ames test)	: Negative in the Ames test.
Carcinogenic Effects	: In 1996, the IARC revaluated carbon black as a GROUP 2B carcinogen (possible human carcinogen). This evaluation is given to carbon black for which there is inadequate human evidence, but sufficient animal evidence. The latter is based upon the developer of lung tumors in rat receiving chronic inhalation exposures to free carbon black at level that induce particle overload of the lung. Studies performed in animal models other than rats have not demonstrated an association between carbon black and lung tumors. Moreover, a two-year cancer bioassay using a typical toner preparation containing carbon black demonstrated no association between toner exposure and tumor development in rats.

SECTION 12 Ecological Information

See "SECTION 15".

SECTION 13 Disposal Consideration

Waste material may be dumped or incinerated under conditions which meet all national and local laws and regulations.

SECTION 14 Transport Information

Transport Information	: This is not a hazardous product.
UN No.	: None allocated.

SECTION 15 Regulatory Information

TSCA All chemical substances in this product comply with all applicable rules or order under TSCA.

EU None

SECTION 16 Other Information

*: Paraffin is not hazardous except for its flammable properties, but “Paraffin wax fume” is one of hazardous chemicals. Its ACGIH TLVs (TWA) and NIOSH RELs (TWA) is the same value (2mg/m^3).

NFPA Rating : Health = 1 Flammability = 1 Reactivity = 0

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SECTION 2 | Composition / Information on Ingredients

	CAS No.	%	OSHA PEL	ACGIH TLV	NIOSH
Non-Hazardous Components					
Polyester resin	39382-25-7	88.0	Not listed	Not listed	Not listed
Titanium Dioxide	13463-67-7	1.0	Not listed	Not listed	Not listed
Wax	9010-79-1	3.0	Not listed	Not listed	Not listed
Paraffin*	8002-74-2	0.0			
Silica	67762-90-7	1.0	Not listed	Not listed	Not listed
Pigment	147-14-8	7.0	Not listed	Not listed	Not listed

*: See "SECTION16".

SECTION 3 | Hazard Identification

Physical Hazards
This material has no usual fire or explosion hazards but will burn if involved in a fire.
Human Health Effects
Carbon black is reclassified as a group 2B by IARC, but inhalation test using a typical toner showed no association between toner exposure and animal tumors.

Inhalation Minimum irritation to the respiratory track may occur as with exposure to any non-toxic dust.
Skin Powder may cause drying of the skin with repeated or prolonged contact.
Ingestion No adverse effects expected.
Eyes High dust concentrations nay cause irritation.

SECTION 4 | First Aid Measure

Inhalation Remove to fresh air. If effects occur, consult medical personnel.
Skin Wash exposed skin with water and soap.
Ingestion Symptomatic treatment is recommended.
Eyes Flush eyes with water to remove dust.

SECTION 5 | Fire Fighting Measure

Flammable Properties
Flash Point: N.A.(Not Applicable)
Lower Explosive Limit : N.A. Upper Explosive Limit : N.A.

Extinguishing Media

Water fog, foam, CO_2, dry chemical.

Protective Equipment

Wear self-contained breathing apparatus and full protective gear.

SECTION 6 Accidental Release Measures

Personal Precautions

Wear appropriate respiratory protection.

Spill Cleanup Measures

Sweep up or vacuum spilled toner and carefully transfer into a sealed container. Sweep slowly to minimize generation of dust during clean up. If a vacuum is used, the motor should be rated as dust tight. Residue can be removed with soap and water.

Environmental Precautions

Waste material may be dumped or incinerated under conditions, which meet all nation and local laws and regulations.

SECTION 7 Handling and Storage

Handling and Storage

Avoid creating dust. Clean up all spills promptly. Provide general ventilation.
Prevent exposure to high temperature, flames and spark-producing equipment.
Store in a cool place.

SECTION 8 Exposure Controls and Personal Protection

Control parameters

OSHA PEL:TWA

5.0mg/m^3 (Inert of Nuisance Dust : Respirable fraction)
15.0mg/m^3 (Inert of Nuisance Dust : Total dust)

ACGIH TLV:TWA(2005)

3.0mg/m^3 (Particulates Not Otherwise Classified : Respirable Particle Mass)
10.0mg/m^3 (Particulates Not Otherwise Classified : Inhalable Particle Mass)

Respiratory Protection

None required under normal use, however, in dusty atmospheres, use an approved dust respirator.

Skin Protection : None required under normal use.
Eye Protection : None required under normal use.
Hand Protection : None required under normal use.
Protective Clothing : None required under normal use.

SECTION 9 Physical and Chemical Properties

Appearance	: Fine powder	**Odor**	: Odorless
PH	: N.A.	**Boiling Point**	: N.A.
Melting Point	: No data	**Flash Point**	: N.A.
Evaporation	: N.A.	**Vapor Pressure**	: N.A.
Vapor Density	: N.A.	**Solubility in Water**	: Negligible
Specific Gravity	: ca. 1.30 (H_2O=1)	**Freezing Point**	: N.A.

SECTION 10 Stability and Reactivity

Chemical Stability	:	Stable
Condition to avoid	:	None
Materials to avoid	:	Oxidizing materials
Hazardous decomposition	:	CO, CO_2 and NOx
Hazardous polymerization	:	None

SECTION 11 Toxicological Information

Routes of Exposure	:Inhalation, Ingestion, Eyes and Skin contact
Acute Effects	:See "SECTION 3".
Chronic Effects	: In a study in rats (H.Muhle) by chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the concentration(16mg/m^3) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m^3) exposure group. But no pulmonary changes was reported in the lowest (1mg/m^3) exposure group, the most relevant level to potential human exposures.
Ingestion	: No data available
Mutagenic Effects (Ames test)	: Negative in the Ames test.
Carcinogenic Effects	: In 1996, the IARC revaluated carbon black as a GROUP 2B carcinogen (possible human carcinogen). This evaluation is given to carbon black for which there is inadequate human evidence, but sufficient animal evidence. The latter is based upon the developer of lung tumors in rat receiving chronic inhalation exposures to free carbon black at level that induce particle overload of the lung. Studies performed in animal models other than rats have not demonstrated an association between carbon black and lung tumors. Moreover, a two-year cancer bioassay using a typical toner preparation containing carbon black demonstrated no association between toner exposure and tumor development in rats.

SECTION 12 Ecological Information

See "SECTION 15".

SECTION 13 Disposal Consideration

Waste material may be dumped or incinerated under conditions which meet all national and local laws and regulations.

SECTION 14 Transport Information

Transport Information	: This is not a hazardous product.
UN No.	: None allocated.

SECTION 15 Regulatory Information

TSCA All chemical substances in this product comply with all applicable rules or order under TSCA.

EU None

SECTION 16 Other Information

*: Paraffin is not hazardous except for its flammable properties, but “Paraffin wax fume” is one of hazardous chemicals. Its ACGIH TLVs (TWA) and NIOSH RELs (TWA) is the same value (2mg/m^3).

NFPA Rating : Health = 1 Flammability = 1 Reactivity = 0

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SECTION 2 | Composition / Information on Ingredients

	CAS No.	%	OSHA PEL	ACGIH TLV	NIOSH
Non-Hazardous Components					
Polyester resin	39382-25-7	88.0	Not listed	Not listed	Not listed
Titanium Dioxide	13463-67-7	1.0	Not listed	Not listed	Not listed
Wax	9010-79-1	3.0	Not listed	Not listed	Not listed
Paraffin*	8002-74-2	0.0	Not listed	Not listed	Not listed
Silica	67762-90-7	1.0	Not listed	Not listed	Not listed
Pigment	5281-04-9	7.0			

*: See "SECTION16".

SECTION 3 | Hazard Identification

Physical Hazards
This material has no usual fire or explosion hazards but will burn if involved in a fire.
Human Health Effects
Carbon black is reclassified as a group 2B by IARC, but inhalation test using a typical toner showed no association between toner exposure and animal tumors.

Inhalation Minimum irritation to the respiratory track may occur as with exposure to any non-toxic dust.
Skin Powder may cause drying of the skin with repeated or prolonged contact.
Ingestion No adverse effects expected.
Eyes High dust concentrations nay cause irritation.

SECTION 4 | First Aid Measure

Inhalation Remove to fresh air. If effects occur, consult medical personnel.
Skin Wash exposed skin with water and soap.
Ingestion Symptomatic treatment is recommended.
Eyes Flush eyes with water to remove dust.

SECTION 5 | Fire Fighting Measure

Flammable Properties
Flash Point: N.A.(Not Applicable)
Lower Explosive Limit : N.A. Upper Explosive Limit : N.A.

Extinguishing Media

Water fog, foam, CO_2, dry chemical.

Protective Equipment

Wear self-contained breathing apparatus and full protective gear.

SECTION 6 Accidental Release Measures

Personal Precautions

Wear appropriate respiratory protection.

Spill Cleanup Measures

Sweep up or vacuum spilled toner and carefully transfer into a sealed container. Sweep slowly to minimize generation of dust during clean up. If a vacuum is used, the motor should be rated as dust tight. Residue can be removed with soap and water.

Environmental Precautions

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SECTION 7 Handling and Storage

Handling and Storage

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SECTION 8 Exposure Controls and Personal Protection

Control parameters

OSHA PEL:TWA

5.0mg/m^3 (Inert of Nuisance Dust : Respirable fraction)
15.0mg/m^3 (Inert of Nuisance Dust : Total dust)

ACGIH TLV:TWA(2005)

3.0mg/m^3 (Particulates Not Otherwise Classified : Respirable Particle Mass)
10.0mg/m^3 (Particulates Not Otherwise Classified : Inhalable Particle Mass)

Respiratory Protection

None required under normal use, however, in dusty atmospheres, use an approved dust respirator.

Skin Protection : None required under normal use.
Eye Protection : None required under normal use.
Hand Protection : None required under normal use.
Protective Clothing : None required under normal use.

SECTION 9 Physical and Chemical Properties

Appearance	: Fine powder	**Odor**	: Odorless
PH	: N.A.	**Boiling Point**	: N.A.
Melting Point	: No data	**Flash Point**	: N.A.
Evaporation	: N.A.	**Vapor Pressure**	: N.A.
Vapor Density	: N.A.	**Solubility in Water**	: Negligible
Specific Gravity	: ca. 1.30 (H_2O=1)	**Freezing Point**	: N.A.

SECTION 10 Stability and Reactivity

Chemical Stability	:	Stable
Condition to avoid	:	None
Materials to avoid	:	Oxidizing materials
Hazardous decomposition	:	CO, CO_2 and NOx
Hazardous polymerization	:	None

SECTION 11 Toxicological Information

Routes of Exposure	:Inhalation, Ingestion, Eyes and Skin contact
Acute Effects	:See "SECTION 3".
Chronic Effects	: In a study in rats (H.Muhle) by chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the concentration(16mg/m^3) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m^3) exposure group. But no pulmonary changes was reported in the lowest (1mg/m^3) exposure group, the most relevant level to potential human exposures.
Ingestion	: No data available
Mutagenic Effects (Ames test)	: Negative in the Ames test.
Carcinogenic Effects	: In 1996, the IARC revaluated carbon black as a GROUP 2B carcinogen (possible human carcinogen). This evaluation is given to carbon black for which there is inadequate human evidence, but sufficient animal evidence. The latter is based upon the developer of lung tumors in rat receiving chronic inhalation exposures to free carbon black at level that induce particle overload of the lung. Studies performed in animal models other than rats have not demonstrated an association between carbon black and lung tumors. Moreover, a two-year cancer bioassay using a typical toner preparation containing carbon black demonstrated no association between toner exposure and tumor development in rats.

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See "SECTION 15".

SECTION 13 Disposal Consideration

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SECTION 14 Transport Information

Transport Information	: This is not a hazardous product.
UN No.	: None allocated.

SECTION 15 Regulatory Information

TSCA All chemical substances in this product comply with all applicable rules or order under TSCA.

EU None

SECTION 16 Other Information

*: Paraffin is not hazardous except for its flammable properties, but “Paraffin wax fume” is one of hazardous chemicals. Its ACGIH TLVs (TWA) and NIOSH RELs (TWA) is the same value (2mg/m^3).

NFPA Rating : Health = 1 Flammability = 1 Reactivity = 0

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Non-Hazardous Components					
Polyester resin	39382-25-7	88.0	Not listed	Not listed	Not listed
Titanium Dioxide	13463-67-7	1.0	Not listed	Not listed	Not listed
Wax	9010-79-1	3.0	Not listed	Not listed	Not listed
Paraffin*	8002-74-2	0.0	Not listed	Not listed	Not listed
Silica	67762-90-7	1.0	Not listed	Not listed	Not listed
Pigment	6358-31-2	7.0			

*: See "SECTION16".

SECTION 3 | Hazard Identification

Physical Hazards
This material has no usual fire or explosion hazards but will burn if involved in a fire.
Human Health Effects
Carbon black is reclassified as a group 2B by IARC, but inhalation test using a typical toner showed no association between toner exposure and animal tumors.

Inhalation Minimum irritation to the respiratory track may occur as with exposure to any non-toxic dust.
Skin Powder may cause drying of the skin with repeated or prolonged contact.
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Ingestion Symptomatic treatment is recommended.
Eyes Flush eyes with water to remove dust.

SECTION 5 | Fire Fighting Measure

Flammable Properties
Flash Point: N.A.(Not Applicable)
Lower Explosive Limit : N.A. Upper Explosive Limit : N.A.

Extinguishing Media

Water fog, foam, CO_2, dry chemical.

Protective Equipment

Wear self-contained breathing apparatus and full protective gear.

SECTION 6 Accidental Release Measures

Personal Precautions

Wear appropriate respiratory protection.

Spill Cleanup Measures

Sweep up or vacuum spilled toner and carefully transfer into a sealed container. Sweep slowly to minimize generation of dust during clean up. If a vacuum is used, the motor should be rated as dust tight. Residue can be removed with soap and water.

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SECTION 8 Exposure Controls and Personal Protection

Control parameters

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15.0mg/m^3 (Inert of Nuisance Dust : Total dust)

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3.0mg/m^3 (Particulates Not Otherwise Classified : Respirable Particle Mass)
10.0mg/m^3 (Particulates Not Otherwise Classified : Inhalable Particle Mass)

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Skin Protection : None required under normal use.
Eye Protection : None required under normal use.
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Protective Clothing : None required under normal use.

SECTION 9 Physical and Chemical Properties

Appearance	: Fine powder	**Odor**	: Odorless
PH	: N.A.	**Boiling Point**	: N.A.
Melting Point	: No data	**Flash Point**	: N.A.
Evaporation	: N.A.	**Vapor Pressure**	: N.A.
Vapor Density	: N.A.	**Solubility in Water**	: Negligible
Specific Gravity	: ca. 1.30 (H_2O=1)	**Freezing Point**	: N.A.

SECTION 10 Stability and Reactivity

Chemical Stability	:	Stable
Condition to avoid	:	None
Materials to avoid	:	Oxidizing materials
Hazardous decomposition	:	CO, CO_2 and NOx
Hazardous polymerization	:	None

SECTION 11 Toxicological Information

Routes of Exposure	:Inhalation, Ingestion, Eyes and Skin contact
Acute Effects	:See "SECTION 3".
Chronic Effects	: In a study in rats (H.Muhle) by chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the concentration(16mg/m^3) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m^3) exposure group. But no pulmonary changes was reported in the lowest (1mg/m^3) exposure group, the most relevant level to potential human exposures.
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See "SECTION 15".

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Transport Information	: This is not a hazardous product.
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TSCA All chemical substances in this product comply with all applicable rules or order under TSCA.

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NFPA Rating : Health = 1 Flammability = 1 Reactivity = 0