

Safety Data Sheet

Product No. 16050 PELCO® Conductive Carbon Glue

Issue Date (08-20-15)

Review Date (10-20-2021) Rev. 04

Section 1: Product and Company Identification

Product Name: PELCO® Conductive Carbon Glue

Synonym: None

Company Name

Ted Pella, Inc., P.O. Box 492477, Redding, CA 96049-2477

Inside USA and Canada 1-800-237-3526 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)

Outside USA and Canada 1-530-243-2200 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)

CHEMTREC USA and Canada Emergency Contact Number 1-800-424-9300 24 hours a day

CHEMTREC Outside USA and Canada Emergency Contact Number +1-703-741-5970 24 hours a day

Section 2: Hazard Identification

<u>Criteria</u>		<u>GHS Category</u>	<u>Signal Word</u>	<u>Pictograms</u>
Flammable Liquid:		2	Danger	Flame
Aspiration Hazard		1	Danger	Health
Specific target organ systemic toxicity	- Repeated Exposure	2	Warning	Health
Carcinogenicity		2	Warning	Health
Reproductive Toxicity		2	Warning	Health
Eye irritation:		2	Warning	Exclamation
Skin irritation:		2	Warning	Exclamation
Specific target organ systemic toxicity	- Single Exposure	3	Warning	Exclamation

Note: The degree of severity is ranked within each hazard class from 1 (Highest Severity) up to 5 (Lowest Severity), which is opposite to HMIS and NFPA conventions. Severity category rankings do not allow comparisons between classes.

GHS Label Elements: Hazard Pictograms



Signal Word: DANGER

GHS Categories: Hazard Statements

GHS02 – Flammable H225: Highly flammable liquid and vapor

GHS07 – Harmful
H315: Causes serious skin irritation
H319: Cause serious eye irritation
H336: May cause drowsiness or dizziness

GHS08 – Health Hazard
H304: May be fatal if swallowed and enters airways
H351: Suspected of causing cancer
H361 Suspected of damaging fertility or the unborn child
H373: May cause damage to organs (central nervous system) through repeated or prolonged exposure

Precautionary Statements:

P102	Keep out of reach of children.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260 + P271	Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P370 + P378	In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.
P314	Get medical advice/attention if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331	Do NOT induce vomiting.
P303 + P361 + P352	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national and international regulations.

Other Hazards

None known

Section 3: Composition / Information on Ingredients

Chemical Name	CAS-No.	EC-No.	Concentration (% w/w)
Toluene	108-88-3	203-625-9	23%
Graphite	7782-42-5	231-955-3	14%
Acetone	67-64-1	200-662-2	9%
Isobutyl acetate	110-19-0	203-745-1	7%
2-heptanone*	110-43-0	203-767-1	7%
Ethanol	64-17-5	200-578-6	6%
Ethyl acetate	141-78-6	205-500-4	4%
1-methoxy-2-propanol acetate	108-65-6	203-603-9	2%
Carbon black	1333-86-4	215-609-9	1%

*Commonly known as methyl amyl ketone (MAK)

Section 4: First Aid Measures

Exposure Condition	GHS Code/Symptoms/Precautionary Statements
IF ON SKIN Immediate Symptoms Response	P303 + P361 + P352, P332 + P313, P363 <i>redness, irritation, dry skin</i> Take off immediately all contaminated clothing. Wash with plenty of water or shower. If skin irritation occurs: Get medical advice or attention. Wash contaminated clothing before reuse.
IF SWALLOWED Immediate Symptoms Response	P301 + P310, P331 <i>nausea, sore throat, diarrhea, drowsiness, dizziness</i> IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting.
IF INHALED Immediate Symptoms Response	P304 + P340, P312, P308 + P313 <i>drowsiness, dizziness, cough, headaches, nausea, unconsciousness</i> Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. IF exposed or concerned: Get medical advice or attention.
IF IN EYES Immediate Symptoms Response	P305 + P351 + P338, P337 + P313 <i>irritation, redness</i> Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

Section 5: Fire Fighting Measures

Extinguishing Media	Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.
Specific Hazards	The liquid may float on water and ignite. The vapors are heavier than air and may accumulate in low-lying areas. Vapors may travel long distances and ignite at an ignition source, which can cause a flashback or an explosion.

Combustion Products	Produces carbon oxides (CO, CO ₂).
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

Section 6: Accidental Release Measures

Personal Protection:	See personal protection recommendations in Section 8.
Precautions for Response:	Do not breathe the mist, spray, or vapors. Remove or keep away all sources of extreme heat or open flames.
Environmental Precautions:	Avoid releasing to the environment.
Containment Methods:	Contain with inert absorbent (such as soil, sand, vermiculite).
Cleaning Methods:	Collect liquid in a sealable, solvent-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wash spill area with soap and water to remove the last traces of residue.
Disposal Methods:	Dispose of spill waste according to Section 13.

Section 7: Handling and Storage

Prevention:	Keep out of reach of children. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof equipment. Use non-sparking tools. Take action to prevent static discharges. Do not breathe mist, vapors, or spray. Use only outdoors or in a well-ventilated area. Do not eat, drink, or smoke when using this product.
Handling:	Wear protective gloves, protective clothing, and eye protection. Take off contaminated clothing and wash it before reuse. Wash hands thoroughly after handling.
Storage:	Store in well ventilated place. Keep cool. Store locked up.

Section 8: Exposure Controls / Personal Protection

Chemical Name	Country	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
<u>Toluene</u>	ACGIH	20 ppm	Not established
	U.S.A. OSHA PEL	200 ppm	300 ppm
	Canada AB	50 ppm	Not established
	Canada BC	20 ppm	Not established
	Canada ON	20 ppm	Not established
	Canada QC	100 ppm	150 ppm
<u>Graphite (natural)</u>	ACGIH	2 mg/m ³	Not established
	U.S.A. OSHA PEL	3 mg/m ³	Not established
	Canada AB	2 mg/m ³	Not established
	Canada BC	2 mg/m ³	Not established
	Canada ON	2 mg/m ³	Not established
	Canada QC	2.5 mg/m ³	Not established
Acetone	ACGIH	500 ppm	750 ppm
	U.S.A. OSHA PEL	1000 ppm	Not established
	Canada AB	500 ppm	750 ppm
	Canada BC	250 ppm	500 ppm
	Canada ON	500 ppm	750 ppm
	Canada QC	750 ppm	1000 ppm
Isobutyl acetate	ACGIH	150 ppm	Not established
	U.S.A. OSHA PEL	150 ppm	Not established
	Canada AB	150 ppm	Not established
	Canada BC	150 ppm	Not established
	Canada ON	150 ppm	Not established
	Canada QC	150 ppm	Not established
2-heptanone	ACGIH	50 ppm	Not established
	U.S.A. OSHA PEL	100 ppm	Not established
	Canada AB	50 ppm	Not established
	Canada BC	50 ppm	Not established
	Canada ON	25 ppm	Not established
	Canada QC	50 ppm	Not established
Ethanol	ACGIH	Not established	1000 ppm
	U.S.A. OSHA PEL	1000 ppm	Not established
	Canada AB	1000 ppm	Not established
	Canada BC	Not established	1000 ppm
	Canada ON	Not established	1000 ppm
	Canada QC	1 000 ppm	Not established
Ethyl acetate	ACGIH	400 ppm	Not established
	U.S.A. OSHA PEL	400 ppm	Not established
	Canada AB	400 ppm	Not established
	Canada BC	150 ppm	Not established
	Canada ON	400 ppm	Not established
	Canada QC	400 ppm	Not established
1-methoxy-2-propanol acetate	ACGIH	Not established	Not established
	U.S.A. OSHA PEL	50 ppm	Not established

	Canada AB	Not established	Not established
	Canada BC	50 ppm	75 ppm
	Canada ON	50 ppm	Not established
	Canada QC	Not established	Not established
Carbon black	ACGIH	3.5 mg/m ³	Not established
	U.S.A. OSHA PEL	3.5 mg/m ³	Not established
	Canada AB	3.5 mg/m ³	Not established
	Canada BC	3 mg/m ³	Not established
	Canada ON	3.5 mg/m ³	Not established
	Canada QC	3.5 mg/m ³	Not established

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from by RTECS database² of the Canadian Center for Occupational Health and Safety (CCOHS) a data from suppliers' SDS were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

Engineering Controls

Ventilation

Keep airborne concentrations below the occupational exposure limits (OEL).

Personal Protection Equipment

Eye protection

Wear appropriate protective eyeglasses or chemical safety goggles.

Recommendation: Ensure that glasses have side shields for lateral protection.

Skin Protection

For likely contacts, use of protective butyl rubber, fluorinated rubber, or other chemically resistant gloves.

For incidental contacts, use nitrile, neoprene, PVC gloves, or other chemically resistant gloves.

Respiratory Protection

For over-exposures up to 10 x OEL of mist, vapors, or spray, wear respirator such as a half-mask respirator with organic vapor cartridges.

Above 10 x OEL, use a positive-pressure, air-supplied respirator or a self-contained breathing apparatus.

Recommendation: Consult your local safety supply store to ensure that your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in Section 3. The respirator should be fitted to the employee by a professional. Ensure vapor cartridges are stored in sealed plastic bags when not being used.

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

Section 9 Physical and Chemical Properties

Physical State	Liquid	Lower Flammability Limit a)	1%
Appearance	Black	Upper Flammability Limit a)	13%
Odor	Ethereal	Vapor Pressure @20 °C b)	~89 hPa [~67 mmHg]
Odor Threshold	Not available	Vapor Density	>2 (Air =1)
pH	Not available	Specific Gravity @25 °C	0.98
Freezing/Melting Point	Not available	Solubility in Water	Partially soluble
Boiling Point a)	≥56 °C [≥132 °F]	Partition Coefficient	Not available
Flash Point a)	-18 °C [-4 °F]	Auto-ignition Temperature c)	≥315 °C [≥599 °F]
Evaporation Rate	fast	Decomposition Temperature	Not available
Flammability (solid, gas)	Not available	Viscosity @40 °C	<20.5 mm ² /s

a) Values based on acetone component.

b) Calculated based on components.

c) Values based on 1-methoxy-2-propanol acetate, which is the component with the lowest auto-ignition value.

Section 10: Stability and Reactivity

Reactivity:	Not available
Chemical Stability:	Chemically stable at normal temperatures and pressures
Conditions to Avoid:	Ignition sources, open flames, and incompatible substances
Incompatibilities:	Oxidizing agents, strong acids
Polymerization:	Will not occur
Decomposition:	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5

Section 11: Toxicological Information

<u>Chemical Name</u>	<u>LD50 oral</u>	<u>LD50 dermal</u>	<u>LC50 inhalation</u>
Toluene	636 mg/kg Rat	12,124 mg/kg Rabbit	49 g/m ³ 4h Rat
Graphite	Not established	Not established	Not established
Acetone	5,800 mg/kg Rat	>9,400 ul/kg Guinea pig	44 g/m ³ 4 h Rat
Isobutyl acetate	13,400 mg/kg Rat	>17,400 mg/kg Rabbit	>13.24 mg/L 6 h Rat
2-heptanone	1,670 mg/kg Rat	12,600 ul/kg Rabbit	Not available
Ethanol	7,060 mg/kg Rat	Not available	20 000 ppm 10 h Rat
Ethyl acetate	5,620 mg/kg Rat	>20,000 ul/kg Rabbit	45 g/m ³ 2 h Mouse
1-methoxy-2-propanol acetate	8,532 mg/kg Rat	>5 g/kg Rabbit	Not available
Carbon black	>15 g/kg Rat	>3 g/kg Rabbit a)	Not established

NOTE: Toxicity data from the RTECS2 and ECHA databases consulted.

The data from supplier (M)SDS were also consulted.

a) Lethal dose

Other Toxicological Effects

Skin corrosion/irritation

Toluene causes skin irritation based on Draize tests on animals.

Serious eye damage/irritation

Acetone, ethanol, and ethyl acetate are known serious eye irritants.

Sensitization

(allergic reactions)

Based on available data, the classification criteria are not met.

Carcinogenicity

(risk of cancer)

The carbon black is possibly carcinogenic by airborne routes of exposures under WHMIS.

Carbon Black [1333-86-4]

IARC Group 2B: Possibly carcinogenic to humans

ACGIH A3: Confirmed Animal Carcinogen with Unknown

Relevance to Humans

CA Prop 65: Listed as a carcinogen (airborne, as unbound particles of respirable size)

NTP: Not listed

Ethanol [64-17-5]

IARC Group 1: Carcinogenic to human when consumed as beverage.

ACGIH A3: Confirmed animal carcinogen with unknown relevance to humans

CA Prop 65: Listed as a carcinogen when consumed as a beverage

NTP: Not listed

Based on available data, the classification criteria are not met.

Mutagenicity

(risk of heritable genetic effects)

At high doses, spermatogenesis was observed in male rat by inhalation of toluene.

Reproductive Toxicity

(risk to sex functions)

Teratogenicity

(risk of fetus malformation)

Fetotoxicity is observed in animal studies for inhalation and oral exposures for toluene. Extreme consumption of ethanol also presents risks for the newborn.

STOT-single exposure

Toluene, acetone, isobutyl acetate, 2-heptanone, ethyl acetate, and 1-methoxy-2-propanol acetate can affect the central nervous system by inhalation causing drowsiness or dizziness.

STOT-repeated exposure

Contains 23% toluene, which is a Cat 2 STOT repeated exposure hazard for the central nervous system and cochlear systems. Toluene is an ototoxic chemical according to rat studies: inhalation exposure in the presence of noise may lead to cochlear impairment.

Aspiration hazard

The liquid is content is classified as Cat 1 aspiration hazards. It is composed of >10% Cat 1 substances, and the kinematic viscosity is <20.5 mm²/s at 40 °C.

Section 12: Ecological Information

Ecological classifications are based on the IMDG/GHS criteria in conjunction with ecotoxicological data from our suppliers, the European Chemical Agency database (<http://echa.europa.eu>), and other reliable sources.

Toluene is an acute category 2 aquatic toxicant with minimal LC50 of 7.63 mg/L for *Oncorhynchus mykiss* (rainbow trout); 8.9 mg/L 24 h *Daphnia magna* (water flea); 10 mg/L 24 h *Pseudokirchneriella subcapitata* (green algae).

Acetone is not classifiable as an environmental toxicant with minimal LC50 96 h of 5 540 mg/L for *Oncorhynchus mykiss* (rainbow trout); EC50 48 h 13 500 mg/L *Daphnia magna* (water flea).

Isobutyl acetate, 2-heptanone, ethanol, and ethyl acetate are not classifiable as an environmental toxicant (with minimal LC50 of >100 mg/L).

- Isobutyl acetate as a minimal LC50 48 h of 101 mg/L for *Leuciscus idus melanotus* and 250 mg/L for *Daphnia magna* (water flea).
- 2-Heptanone has a minimal LC50 96 h of 126 mg/L for *Pimephales promelas* (fathead minnow).
- Ethanol is biodegradable and has a minimal LC50 of >1 000 mg/L for fish, invertebrates, and algae
- Ethyl acetate is has a minimal LC50 96 h of 220 mg/L for *Pimephales promelas* (fathead minnow); a LC50 48 h of 560 mg/L and EC50 24 h of 2 300 mg/L *Daphnia magna* (water flea); and an EC50 72 h 1 800 mg/L for *Selenastrum*.

The 1-methoxy-2-propanol acetate component is an acute category 3 environmental toxicant (with minimal LC50 96 h of ≥ 100 mg/L *Salmo gairdneri*).

Based on available data, carbon black is not classified as environmental hazards according to GHS criteria.

Acute Ecotoxicity

Available data doesn't give rise to classification as an acute ecotoxicant.

Chronic Ecotoxicity

Available data doesn't give rise to classification as a chronic ecotoxicant.

Biodegradability

Expected to be biodegradable. The volatile solvent constituents will oxidize rapidly in air by photochemical reaction.

Other Effects

Regulated Volatile Organic Compounds (VOC) content according to the US (EPA) and Canadian (CEPA) authorities.

VOC = 52% [516 g/L]

Section 13 Disposal Considerations

RCRA 40 CFR 261 Classification: ND

International, Federal, State and local laws governing disposal of materials can differ.

Ensure proper disposal compliance with proper authorities before disposal.

Section 14: Transportation Information

US DOT 49 CFR Regulations. (Parts 100 to 185)	
Sizes greater than 5L	
UN Number:	UN1263
Shipping Name:	Paint
Class:	3
Packing Group:	II
Marine Pollutant:	No
Flash Point:	-18°C [-4°F]



ICAO-IATA Dangerous Goods Regulations

Sizes up to 5L (passenger), 60L (cargo)

UN Number: UN1263
Shipping Name: Paint
Class: 3
Packing Group: II
Marine Pollutant: No
Flash Point: -18°C [-4°F]

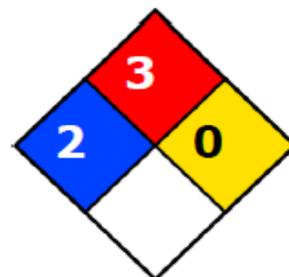


Section 15: Regulatory Information United States Federal Regulations

HMIS® RATING

HEALTH:	* 2
FLAMMABILITY:	3
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	

NFPA® 704 CODES



Approximate HMIS and NFPA Risk Ratings Legend:

0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

CAA (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

This product does not contain any class 2 ozone depleting substances.

This product contains toluene (CAS# 108-88-3), which is listed as hazardous air pollutants.

EPCRA (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45)

This product contains toluene (CAS# 108-88-3; reportable quantity = 1000 lb) and nickel (CAS# 7440-02-0, reportable quantity = 100 lb), which are subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

This product contains acetone (CAS# 67-64-1), isobutyl acetate (CAS# 110-19-0) and ethyl acetate (CAS# 141-78-6), which are subject to the CERCLA reporting requirements at the 5000 lb (2268 kg) threshold.

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, June 06, 2014 revision, USA).

This product contains toluene, which is listed as reproductively toxic.

This product contains carbon black, which is listed as a carcinogenic substances when airborne, as unbound particles of respirable size.

This product contains ethanol, which is listed as reproductively toxic. It is also listed as a carcinogen when in an alcoholic beverage.

SDS complies with OSHA's Hazard Communication Rule 29, CFR 1910.1200.

International Regulations

- Canada:** Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)
All hazardous ingredients are listed on the DSL/NDSL.
Hazardous Products Act (R.S.C., 1985, c. H-3)
The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2015.
- Europe:** **RoHS** (Restriction of Hazardous Substances Directive)
This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's, and complies with European RoHS regulations.
WEEE (Waste Electrical and Electronic Equipment Directive)
This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

Section 16: Other Information

Reference

- 1) ACGIH 2013 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2013).
- 2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
IARC	International Agency for Research on Cancer
NOELR	No observable effect loading ratio
NTP	National Toxicology Program
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
SDS	Safety Data Sheet
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content

Disclaimer

Ted Pella, Inc. makes no warranty of any kind regarding the information furnished herein. Users should independently determine the suitability and completeness of information from all sources. While this data is presented in good faith and believed to be accurate, it should be considered only as a supplement to other information gathered by the user. It is the User's responsibility to assure the proper use and disposal of these materials as well as the safety and health of all personnel who may work with or otherwise come in contact with these materials.