TED PELLA, INC.
Microscopy Products for Science and Industry

SAFETY DATA SHEET

Product No. 18505, 18505-100 Paraformaldehyde 16% Solution, EM Grade
Issue Date (04/23/15)
Review Date (08/03/2023) Rev. 05

Section 1: Product and Company Identification

Product Name: Paraformaldehyde 16% Solution, EM Grade
Synonym: Formaldehyde, 16%, EM Grade (Methanol Free)
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

Classification of the substance or mixture.

Signal Word: DANGER
Hazard-determining component of labeling: Paraformaldehyde

GHS Categories:

GHS07 – Irritant	Skin Irritant:	Category 2
	Eye Irritant:	Category 2A
GHS08 - Health hazard	Sensitization: Respiratory	Category 1
	Flammable Liquids	Category 4

Label elements
GHS Pictograms:


GHS07


GHS08

Hazard Statements

H227	Combustible liquid
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary Statements

Prevention:

P210	Keep away from heat, sparks, open flames, hot surfaces - no smoking.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves, eye protection, and face protection.
P284	(In case of inadequate ventilation) wear respiratory protection

Response:

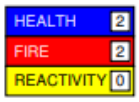
P302 + P352	IF ON SKIN: Wash with plenty of water.
P321	Specific treatment (see on this label)
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P362	Take off contaminated clothing and wash it before reuse.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a poison center/physician
P370 + P378	In case of fire: Use for extinction: CO_2, powder or water spray.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· ***NFPA ratings (scale 0 - 4)***

Health = 2
Fire = 2
Reactivity = 0

· ***HMIS-ratings (scale 0 - 4)***



Health = 2
Fire = 2
Reactivity = 0

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Section 3: Composition / Information on Ingredients

Hazardous Component(s)	CAS No.	EC No.	w/w%
Paraformaldehyde	30525-89-4	608-494-5	>10 - ≤ 25%

Section 4: First Aid Measures

General advice: Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
In case of irregular breathing or respiratory arrest provide artificial respiration**.**

Inhalation: In case of unconsciousness, place patient stably in side position for transport.

Skin Contact: Immediate wash with water and soap and rinse thoroughly.

Eye(s) Contact: Rinse opened eye for several minutes under running water.
If symptoms persist, consult a physician.

Ingestion: Immediately call a physician.

Note to physician:

Most important symptoms and effects, both acute and delayed: No further relevant information available.

Indication of any immediate medical attention and special treatment needed: No further relevant information available.

Section 5: Fire Fighting Measures

Suitable extinguishing media: CO_2, extinguishing powder or water spray.
Fight larger fires with water spray or alcohol resistant foam.

Specific hazards during firefighting: No further relevant information available.

Special protective equipment for fire fighters: No special measures required.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:

- Not required

Environmental precautions:

- Dilute with plenty of water.
- Do not allow to enter sewers/surface or ground water.

Methods and materials for containment and cleaning up:

- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- Dispose contaminated material as waste according to Section 13
- Ensure adequate ventilation.

Reference to other sections:

- Safe handling Information – Section 7
- Personal Protective Equipment – Section 8
- Disposal Information – Section 13

Protective Action Criteria for Chemicals

- **PAC-1**: 2 mg/m^3
- **PAC-2**: 23 mg/m^3
- **PAC-3**: 447 mg/m^3

Section 7: Handling and Storage

Precautions for safe handling: Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.

Information about protection against explosions and fire:
No special measures required.

Conditions for safe storage (including incompatibilities):

Requirements to be met by storerooms and receptacles:	No special requirements.
Information about storage in one common storage facility:	Not required.
Other information about storage conditions:	Keep receptacle tightly sealed.
Specific end use(s):	No further relevant information available.

Section 8: Exposure Controls / Personal Protection

Control Parameters

Components with limit value that require monitoring at the workplace;
The product does not contain any relevant quantities of material with critical values that have to be monitored at the workplace.

Additional information: The lists that were valid during the creation were used as basis.

Engineering Measures

Personal protection equipment: Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

Respiratory protection: In case of brief exposure or low pollution, use respiratory filtering device.
In case of intensive or prolonged exposure, use respiratory protection device that is independent of circulating air.

Hand protection:

- Protective gloves
- The glove material has to be impermeable and resistant to the product, substance and preparation.
- Due to missing tests, no recommendation to the glove material can be given for the product, the preparation or the mixture.
- Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Material of gloves:

- The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- As the product is a preparation of several substances, the resistance of the glove material cannot be calculated

In advance and has therefor to be checked prior to the application.

Penetration time of glove material:

- The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

- Tightly sealed goggles

Section 9 Physical and Chemical Properties

Appearance	Liquid
Color	Colorless
Odor	Like aldehyde
Odor threshold	Not determined
pH at 20°C (68°F)	2.8
Melting point/range	Not determined
Boiling point/range	199.4°F / 93°C
Flash point	143.6°F / 62°C
Flammability (solid, gas)	Not applicable
Decomposition temperature	Not determined
Self-ignition	Product is not self-igniting
Danger of explosion:	Not determined
Upper explosion/flammability limit	73 Vol%
Lower explosion/flammability limit	7 Vol%
Vapor pressure at 20°C (68°F)	23 hPa (17.3 mm Hg)
Density at 20°C (68°F)	1.07 g/cm^3 (8.6788 lbs/gal)
Relative density	Not determined
Vapor density	Not determined
Evaporation rate	Not determined
Solubility in H_2O	Fully miscible
Partition coefficient (n-octanol/water)	Not determined
Viscosity, dynamic	Not determined
Viscosity, kinematic	Not determined
Solvent Content:	
Water:	84.0%
VOC content:	0.00%
Solids content:	0.0%
Molecular weight	30.03 g/mol (as monomer)

Section 10: Stability and Reactivity

Chemical Stability

Thermal decomposition/conditions to be avoided:

- No decomposition if used according to specifications.

Possibility of hazardous reactions:

- No dangerous reactions known.

Conditions to avoid:

- No further relevant information available.

Incompatible materials:

- No further relevant information available.

Hazardous decomposition products:

- No dangerous decomposition products known.

Reactivity:

- No further relevant information available.

Section 11: Toxicological Information

Acute toxicity:

Oral	LD50	800 mg/kg (rat)
Dermal	LD50	10,000 mg/kg (rabbit)
Inhalation	LC50 / 4h	1,070 mg/L (rat)

Primary irritant effect:

On the skin: Irritant to skin and mucous membrane.

On the eye: Irritating effect.

Sensitization: Possible through inhalation.

Additional Toxicology Information:

The product shows HARMFUL and IRRITANT dangers according to internal approved calculation methods for preparations.

Carcinogenic categories:

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC and is not listed.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens and is not listed.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP and is not listed.

Section 12: Ecological Information

Toxicity:

- Aquatic Toxicity: No further relevant information available.
- Persistence and degradability: No further relevant information available.

Behavior in environmental systems:

- Bioaccumulative potential: No further relevant information available.
- Mobility in soil: No further relevant information available.

Additional Ecological Information:

Water hazard class 3 (self assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Results of PBT and vPvB assessment:
PBT Not applicable
vPvB: Not applicable

Other adverse effects: No further relevant information available.

Section 13 Disposal Considerations

Waste Treatment Methods:
Recommendation: Must not be disposed of together with household garbage.
Do not allow product to reach sewage system.

Uncleaned Product Containers:
Recommendation: Dispose in a safe manner in accordance with local, state and federal regulations.

Cleaning Agent:
Recommendation: Water, if necessary with cleansing agents.

Section 14: Transportation Information

U.S. Department of Transportation Ground (49 CFR)
Proper shipping name: Not Listed

International Air Transportation (ICAO/IATA)
Proper shipping name: Aviation regulated liquid, n.o.s.
Hazard class or division: 9 Miscellaneous
Identification number: UN 3334
Packing group: III

Water Transportation (IMO/IMDG)
Proper shipping name: Aviation regulated liquid, n.o.s.
Hazard class or division: 9 Miscellaneous
Identification number: UN 3334
Packing group: III

Labels:

Special precautions for user: Warning: Miscellaneous dangerous substance and articles
Stowage Category: B
Annex II of MARPO 73/78: Not applicable

The transport classification(s) provided herein are for information purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet (SDS). Transportation classifications may vary by mode of transportation, package size, and variations in regional or country regulations.

Section 15: Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture:

- No further relevant information available.

SARA - Superfund Amendments and Reauthorization Act:
Section 355 (extremely hazardous substances) Substance is not listed
Section 313 (specific toxic chemical listings) Substance is not listed

TSCA - Toxic Substances Control Act:	ACTIVE
Hazardous Air Pollutants:	Substance is not listed
California Proposition 65:	Substance is not listed

Carcinogenic categories:

EPA (Environmental Protection Agency):	Substance is not listed
TLV (Threshold Limit Value):	Substance is not listed

NIOSH (National Institute for Occupation Safety and Health:
Substance is not listed

Chemical Safety Assessment: An assessment has not been performed

Section 16: Other Information

This Safety Data Sheet (SDS) is intended to comply with the OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Full text of other abbreviations

ACGIH:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI:	ACGIH - Biological Exposure Indices (BEI)
NIOSH REL:	USA. NIOSH Recommended Exposure Limits
OSHA Z-1:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-2:	USA. Occupational Exposure Limits (OSHA) - Table Z-2
US WEEL:	USA. Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA:	8-hour, time-weighted average
ACGIH / STEL:	Short-term exposure limit
NIOSH REL/TWA:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL/ST:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA Z-1 / TWA:	8-hour time weighted average
OSHA Z-2/TWA:	8-hour time weighted average
OSHA Z-2/CEIL:	Acceptable ceiling concentration
OSHA Z-2/Peak:	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift
US WEEL/TWA:	8-hr TWA

AICS - Australian Inventory of Chemical Substances;
AIIC - Australian Inventory of Industrial Chemicals;
ASTM - American Society for the Testing of Materials;
bw - Body weight;
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act;
CMR - Carcinogen, Mutagen or Reproductive Toxicant;
DIN - Standard of the German Institute for Standardization;
DOT - Department of Transportation;
DSL - Domestic Substances List (Canada);
ECx - Concentration associated with x% response;
EHS - Extremely Hazardous Substance;
ELx - Loading rate associated with x% response;
EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan);
ErCx - Concentration associated with x% growth rate response;
ERG - Emergency Response Guide;
GHS - Globally Harmonized System;
GLP - Good Laboratory Practice;
HMIS - Hazardous Materials Identification System;
IARC - International Agency for Research on Cancer;
IATA - International Air Transport Association;

IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk;
IC50 - Half maximal inhibitory concentration;
ICAO - International Civil Aviation Organization;
IECSC - Inventory of Existing Chemical Substances in China;
IMDG - International Maritime Dangerous Goods;
IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan);
ISO - International Organization for Standardization;
KECI - Korea Existing Chemicals Inventory;
LC50 - Lethal Concentration to 50 % of a test population;
LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose);
MARPOL - International Convention for the Prevention of Pollution from Ships;
MSHA - Mine Safety and Health Administration;
n.o.s. - Not Otherwise Specified;
NFPA - National Fire Protection Association;
NO(A)EC - No Observed (Adverse) Effect Concentration;
NO(A)EL - No Observed (Adverse) Effect Level;
NOELR - No Observable Effect Loading Rate;
NTP - National Toxicology Program;
NZIoC - New Zealand Inventory of Chemicals;
OECD - Organization for Economic Co-operation and Development;
OPPTS - Office of Chemical Safety and Pollution Prevention;
PBT - Persistent, Bioaccumulative and Toxic substance;
PICCS - Philippines Inventory of Chemicals and Chemical Substances;
(Q)SAR - (Quantitative) Structure Activity Relationship;
RCRA - Resource Conservation and Recovery Act;
REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemicals;
RQ - Reportable Quantity;
SADT - Self-Accelerating Decomposition Temperature;
SARA - Superfund Amendments and Reauthorization Act;
SDS -Safety Data Sheet;
TCSI - Taiwan Chemical Substance Inventory;
TSCA - Toxic Substances Control Act (United States);
UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods;
vPvB - Very Persistent and Very Bioaccumulative
