TED PELLA, INC.
Microscopy Products for Science and Industry

Safety Data Sheet

Product No. 18501 Paraformaldehyde, EM Grade, Prill Purified
Issue Date (05-06-15)
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Section 1: Product and Company Identification

Product Name: Paraformaldehyde, EM Grade, Prill Purified
Synonym: Paraform, paraform polyoxymethylene, polyoxymethylene glycols.
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, formaldehyde

GHS Categories:

GHS02 – Flammables	Flammable solid	Category 2
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:

GHS02 GHS07 GHS08

Hazard Statements

H228	Combustible solid.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H350	May cause cancer.

Precautionary Statements
Prevention:

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, sparks, open flames, hot surfaces - no smoking.

P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/equipment.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing must not be allowed out of the workplace.
P280	Wear protective gloves, clothing, eye protection, and face protection.
P284	(In case of inadequate ventilation) wear respiratory protection

Response:

P301 + P312	If swallowed: Call a poison center/doctor if you feel unwell.
P330	Rinse mouth.
P303 + P352	If on skin: Wash with plenty of water.
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.
P308 + P313	If exposed or concerned: Get medical advice/attention.
P321	Specific treatment (see on this label)
P362 + P364	Take off contaminated clothing and wash it before reuse.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a poison center/physician.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use for extinction: CO_2, powder or water spray.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· ***NFPA ratings (scale 0 - 4)***

Health = 2
Fire = 2
Reactivity = 1

· ***HMIS-ratings (scale 0 - 4)***

*Health = *2*
Fire = 2
Reactivity = 1

Other Hazards

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

Section 3: Composition / Information on Ingredients

Chemical characterization: Mixture
Description: Mixture of the substances listed below with non-hazardous additions.

Hazardous Component(s)	CAS Number	% w/w
Paraformaldehyde	30525-89-4	>= 50 - ≤100%
Formaldehyde	50-00-0	>= 2.5 - ≤10%

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.

Inhalation: Supply fresh air and contact a physician.
In case of unconsciousness place patient stably in side position for transport.

Skin Contact: Immediately 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 doctor.

Ingestion: Call a physician immediately.

Symptoms: Acute and Delayed – No further relevant information available.

Note to physician: No further relevant information available.

Section 5: Fire Fighting Measures

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

Unsuitable extinguishing media: Water with full jet.

Special protective equipment for fire fighters: In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment. Mouth respiratory protective device.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:

- Wear protective equipment
- Keep unprotected persons away (see Section 7)

Environmental precautions:

- Do not allow product to enter sewers or drains, and/or surface or ground water. (see Section 8)

Methods and materials for containment and cleaning up:

- Dispose contaminated material as waste according to local/national regulations (see Section 13).
- Ensure adequate ventilation.

Protective Action Criteria for Chemicals

PAC-1	30525-89-4	Paraformaldehyde	2 mg/m^3
	50-00-0	Formaldehyde	0.90 ppm
PAC-2	30525-89-4	Paraformaldehyde	23 mg/m^3
	50-00-0	Formaldehyde	14 ppm
PAC-3	30525-89-4	Paraformaldehyde	47 mg/m^3
	50-00-0	Formaldehyde	56 ppm

Section 7: Handling and Storage

Precautions for safe handling:

Thorough dedusting. Prevent formation of dust.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.

Information about protection against explosions and fires:

Keep away from heat and sources of ignition – Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.

Conditions for safe storage: Keep tightly closed in a dry, cool and well-ventilated place.
Protect from heat and direct sunlight.

Section 8: Exposure Controls / Personal Protection

Control Parameters

The following constituent is the only component of the product which has a PEL, TLV or other recommended exposure limit.

Formaldehyde	**CAS: 50-00-0**		Reference
PEL	Short-term value: Long-term value:	2 ppm 0.75 ppm	29 CFR 1910.1048 (c)
REL	Long-term value: Ceiling limit value	0.016 ppm 0.1 ppm (15-min)	NIOSH Pocket Guide Appendix A
TLV	Short-term value: Long-term value:	0.37 mg/m^3, 0.3 ppm 0.12 mg/m^3, 0.1 ppm	ACGIH DSEN; RSEN

Personal Protection Equipment

General protective and hygienic measures: Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective equipment separately.
Avoid contact with the eyes and skin.

Breathing equipment: In case of brief exposure or low pollution use respiratory filter device.
In case of intensive or longer exposure use respiratory protective 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	Solid
Color	White
Odor	Pungent
Odor threshold	Not determined
pH at 20°C (68°F)	4
Melting point/range	248°F / 120°C
Boiling point/range	Not determined
Flash point	158°F / 70°C
Flammability (solid, gas)	Highly flammable
Decomposition temperature	Not determined
Ignition temperature	572°F / 300°C
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)	n.a. hPa
Density at 20°C (68°F)	1.46 g/cm^3 (12.1837 lbs/gal)
Relative density	Not determined
Vapor density	Not applicable
Evaporation rate	Not applicable
Solubility in H_2O	Insoluble
Partition coefficient (n-octanol/water)	Not determined
Viscosity, dynamic	Not applicable
Viscosity, kinematic	Not applicable
Solvent Content:	
Organic solvents:	3.0%
VOC content:	3.00%
Solids content:	86.3%

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:	**Paraformaldehyde**	**CAS: 30525-89-4**
Oral	LD50	800 mg/kg (rat)
Dermal	LD50	10,000 mg/kg (rabbit)
Inhalation	LC50 / 4h	1,070 mg/L (rat)

Acute toxicity:	**Formaldehyde**	**CAS: 50-00-0**
Oral	LD50	>200 mg/kg (rat)

Primary irritant effect:
On the skin: Irritant to skin and mucous membrane.
On the eye: Irritating effect.
Sensitization: Possible through inhalation.
Possible through skin contact.

Additional Toxicology Information:
The product shows HARMFUL, IRRITANT and CARCINOGENIC dangers according to internal approved calculation methods for preparations.

Carcinogenic categories:

IARC:	Formaldehyde	CAS: 50-00-0	Category 1
OSHA:	Formaldehyde	CAS: 50-00-0	
NTP:	Formaldehyde	CAS: 50-00-0	Category K

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 1 (self assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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.

Section 14: Transportation Information

UN "Model Regulation": **UN 2213 PARAFORMALDEHYDE, 4.1 III**

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name:	Flammable solids
Hazard class or division:	4.1
Identification number:	UN 2213
Packing group:	III
Hazardous Substance	1000lbs, 454kg

International Air Transportation (ICAO/IATA)

Proper shipping name:	Flammable solids
Hazard class or division:	4.1
Identification number:	UN 2213
Packing group:	III
Excepted Quantity:	E1

Water Transportation (IMO/IMDG)

Proper shipping name:	Flammable solids
Hazard class or division:	4.1
Identification number:	UN 2213
Packing group:	III

Labels:

Special precautions for user:	Warning: Flammable solids, self-reactive substances and solid desensitized explosives.
Danger code (Kemler):	40
EMS Number:	F-A, S-G
Stowage Category:	A
Stowage Code:	SW23 When transported in BK3 bulk container (see 7.6.2.12 and 7.7.3.9)

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:

SARA - Superfund Amendments and Reauthorization Act:

Section 355 (extremely hazardous substances)	Formaldehyde CAS: 50-00-0
Section 313 (specific toxic chemical listings)	Formaldehyde CAS: 50-00-0
TSCA - Toxic Substances Control Act:	All ingredients are listed

California Proposition 65:

Chemicals known to cause cancer:	Formaldehyde CAS: 50-00-0
Chemicals known to cause reproductive toxicity for females:	None of the ingredients is listed
Chemicals known to cause reproductive toxicity for males:	None of the ingredients is listed
Chemicals known to cause developmental toxicity:	None of the ingredients is listed

Carcinogenic categories:

EPA (Environmental Protection Agency):	Formaldehyde CAS: 50-00-0
TLV (Threshold Limit Value):	Formaldehyde CAS: 50-00-0
NIOSH (National Institute for Occupation Safety and Health:	Formaldehyde CAS: 50-00-0
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
