

1 Identification

- **Product identifier**
- **Trade name:** XP MicroSpray Positive Photoresist Spray
- **Product number:** MSP0013
- **Application of the substance / the mixture** Photoresist
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 Kayaku Advanced Materials
 200 Flanders Road
 Westborough, MA 01581
 Tel: (617) 965-5511
 Fax: (617) 965-5818
- **Information department:**
 Product Safety
 Email: productsafety@kayakuAM.com
- **Emergency telephone number:**
 Kayaku Advanced Materials : 617-965-5511
 Chemtrec USA Emergency : 800-424-9300
 Chemtrec International Emergency : 703-527-3887

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Aerosol 1 H222 Extremely flammable aerosol.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.
 Eye Irrit. 2A H319 Causes serious eye irritation.
 STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02 GHS07

- **Signal word** Danger
- **Hazard-determining components of labeling:**
 1-Methoxy-2-propanol acetate
- **Hazard statements**
 H222 Extremely flammable aerosol.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.

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H336 May cause drowsiness or dizziness.

Precautionary statements

- P211 Do not spray on an open flame or other ignition source.
 P251 Pressurized container: Do not pierce or burn, even after use.
 P260 Do not breathe dust/fume/gas/mist/vapors/spray.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P301+P310 If swallowed: Immediately call a poison center/doctor.
 P302+P352 If on skin: Wash with plenty of soap and water.
 P304+P341 If inhaled: If breathing is difficult, 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.
 P337+P313 If eye irritation persists: Get medical advice/attention.
 P370+P378 In case of fire: Use for extinction: Alcohol resistant foam.
 P370+P378 In case of fire: Use for extinction: Fire-extinguishing powder.
 P370+P378 In case of fire: Use for extinction: Carbon dioxide.
 P403+P235 Store in a well-ventilated place. Keep cool.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:
NFPA ratings (scale 0 - 4)

HMIS-ratings (scale 0 - 4)

Other hazards
Results of PBT and vPvB assessment

- PBT:** Not applicable.
- vPvB:** Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures
Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

108-65-6	1-Methoxy-2-propanol acetate ⚠ Flam. Liq. 3, H226; ⚠ STOT SE 3, H336	55-80%
115-10-6	dimethyl ether ⚠ Flam. Gas 1, H220; ⚠ Press. Gas, H280	10-25%
1319-77-3	Cresol (mix) ⚠ Acute Tox. 3, H301; Acute Tox. 3, H311; ⚠ Skin Corr. 1B, H314; Flam. Liq. 4, H227	<1%

Additional Components:

Mixed Cresol Novolac Resin	⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315	10-25%
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Diazo Photoactive Compound

5-10%

4 First-aid measures

- **Description of first aid measures**
- **After inhalation:**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Wash eyes immediately with a large amount of water or normal saline, occasionally lifting upper and lower eye lids until no evidence of chemical remains (about 20 minutes). Remove contact lenses if present and easy to remove. Seek immediate medical attention.
- **After swallowing:** Seek immediate medical advice.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed** Treat symptomatically.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
Alcohol resistant foam
Fire-extinguishing powder
ABC powder
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Wear SCBA.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Keep away from ignition sources
Ensure adequate ventilation
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
 Open and handle container with care.
 Keep away from heat and direct sunlight.
 Ensure good ventilation/exhaust at the workplace.
- **Information about protection against explosions and fires:**
 Keep ignition sources away - Do not smoke.
 Protect against electrostatic charges.
 Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.
 Do not spray on a naked flame or any incandescent material.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and containers:**
 Store in a cool location.
 Observe official regulations on storing packagings with pressurized containers.
- **Information about storage in one common storage facility:**
 Do not store together with alkalis (caustic solutions).
 Do not store together with oxidizing and acidic materials.
- **Further information about storage conditions:**
 Keep container well-sealed in cool, dry location.
 Protect from heat and direct sunlight.
 Store receptacle in a well ventilated area.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

Components with limit values that require monitoring at the workplace:	
108-65-6 1-Methoxy-2-propanol acetate	
WEEL	50 ppm
115-10-6 dimethyl ether	
WEEL	1000 ppm
1319-77-3 Cresol (mix)	
PEL	22 mg/m ³ , 5 ppm
	Skin
REL	10 mg/m ³ , 2.3 ppm
TLV	20* mg/m ³
	Skin; *as inhalable fraction and vapor

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:** Wash hands before breaks and at the end of work.
- **Respiratory equipment:** Use suitable respiratory protective device in case of insufficient ventilation.

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· Protection of hands:


Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

 · **Material of gloves** Butyl rubber, BR

 · **Penetration time of glove material** Contact glove manufacture for break-through time.

· Eye protection:


Tightly sealed goggles

9 Physical and chemical properties
· Information on basic physical and chemical properties
· General Information
· Appearance:

Form: Aerosol

Color: Amber colored

 · **Odor:** Ethereal

 · **Odor threshold:** Not determined.

 · **pH-value:** Not determined.

· Change in condition

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: -24 °C (75.2 -24 °F)

 · **Flash point:** -42 °C (107.6 -42 °F)

 · **Flammability (solid, gaseous):** Not applicable.

 · **Ignition temperature:** 235 °C (455 235 °F)

 · **Decomposition temperature:** Not determined.

 · **Auto igniting:** Product is not selfigniting.

 · **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· Explosion limits:

Lower: 1.5 Vol %

Upper: 18.6 Vol %

 · **Vapor pressure at 20 °C (6820 °F):** 5200 hPa (3,900.3 5200 mm Hg)

 · **Density:** See other information

 · **Relative density** Not determined.

 · **Vapor density** Not determined.

 · **Evaporation rate** Not applicable.

· Solubility in / Miscibility with

Water: Water miscible No

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- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
 - Dynamic:** Not determined.
 - Kinematic:** Not determined.
- **Solvent content:**
- **VOC content:** 70-80 %
- **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability** Stable
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions**
 - Possible formation of peroxide.
 - Used empty containers may contain product gases which form explosive mixtures with air.
- **Conditions to avoid**
 - Contact with incompatible materials.
 - Heat, flames and sparks. Extremes of temperature and direct sunlight.
- **Incompatible materials:**
 - Strong Oxidizing Agents, Strong Bases, Strong Acids, Strong Reducing Agents, Iron, Hydrazine
- **Hazardous decomposition products:**
 - Nitrogen oxides
 - Irritant gases/vapors
 - Aldehyde
 - Carbon monoxide and carbon dioxide
- **Additional information:** May form peroxides

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** May cause skin irritation
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)**
 - None of the ingredients are listed.
- **NTP (National Toxicology Program)**
 - None of the ingredients are listed.
- **OSHA-Ca (Occupational Safety & Health Administration)**
 - None of the ingredients are listed.

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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:**
- **General notes:**
 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.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
 Must not be disposed of as regular garbage/trash. Do not allow product to reach sewage system.
 Disposal must be made in accordance with Federal, State, and Local regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made in accordance with Federal, State, and Local regulations.

14 Transport information

- | | |
|---|---------------------|
| · UN-Number | UN1950 |
| · DOT, ADR, IMDG, IATA | |
| · UN proper shipping name | AEROSOLS, flammable |
| · DOT, IATA | 1950 AEROSOLS |
| · ADR | AEROSOLS |
| · IMDG | |
| · Transport hazard class(es) | |
| · DOT | |
|  | |
| · Class | 2.1 |
| · Label | 2.1 |

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 · **ADR**

 · **Class** 2 5F Gases
 · **Label** 2.1

 · **IMDG, IATA**

 · **Class** 2.1
 · **Label** 2.1

 · **Packing group**
 · **DOT, ADR, IMDG, IATA** Void

 · **Environmental hazards:**
 · **Marine pollutant:** No

 · **Special precautions for user** Warning: Gases
 · **Danger code (Kemler):** -
 · **EMS Number:** F-D,S-U
 · **Stowage Code** SW1 Protected from sources of heat.
 SW22 For AEROSOLS with a maximum capacity of 1 litre:
 Category A. For AEROSOLS with a capacity above 1 litre:
 Category B. For WASTE AEROSOLS: Category C, Clear of living
 quarters.
 · **Segregation Code** SG69 For AEROSOLS with a maximum capacity of 1 litre:
 Segregation as for class 9. Stow "separated from" class 1 except for
 division 1.4.
 For AEROSOLS with a capacity above 1 litre:
 Segregation as for the appropriate subdivision of class 2.
 For WASTE AEROSOLS:
 Segregation as for the appropriate subdivision of class 2.

 · **Transport in bulk according to Annex II of
 MARPOL73/78 and the IBC Code** Not applicable.

 · **Transport/Additional information:**

 · **ADR**
 · **Excepted quantities (EQ)** Code: E0
 Not permitted as Excepted Quantity

 · **IMDG**
 · **Limited quantities (LQ)** 1L
 · **Excepted quantities (EQ)** Code: E0
 Not permitted as Excepted Quantity

 · **UN "Model Regulation":** UN1950, AEROSOLS, 2.1

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15 Regulatory information

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

· Section 355 (extremely hazardous substances):

None of the ingredients are listed.

· Section 313 (Specific toxic chemical listings):

1319-77-3 Cresol (mix)

- TSCA (Toxic Substances Control Act): All ingredients are listed or comply with TSCA regulations.
- Proposition 65

· Chemicals known to cause cancer:

None of the ingredients are listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency)

1319-77-3 Cresol (mix)

C

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients are listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients are listed.

· Massachusetts State Right To Know List

115-10-6 dimethyl ether

· New Jersey State Right To Know List

115-10-6 dimethyl ether

· Pennsylvania Hazardous Substances List

115-10-6 dimethyl ether

- California SCAQMD Rule 443.1 VOC's: No information available.
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms



GHS02 GHS07

- Signal word Danger

· Hazard-determining components of labeling:

1-Methoxy-2-propanol acetate

· Hazard statements

H222 Extremely flammable aerosol.

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H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
· Precautionary statements
P211 Do not spray on an open flame or other ignition source.
P251 Pressurized container: Do not pierce or burn, even after use.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 If swallowed: Immediately call a poison center/doctor.
P302+P352 If on skin: Wash with plenty of soap and water.
P304+P341 If inhaled: If breathing is difficult, 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.
P337+P313 If eye irritation persists: Get medical advice/attention.
P370+P378 In case of fire: Use for extinction: Alcohol resistant foam.
P370+P378 In case of fire: Use for extinction: Fire-extinguishing powder.
P370+P378 In case of fire: Use for extinction: Carbon dioxide.
P403+P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: Product safety department

· Contact: Tom Cole, EHS Manager (tcole@kayakuAM)

· Revision History:

The manufacturer's information in Section 1, the product hazard information in Section 2 and the component hazard information in Section 3 have been updated.

· Date of preparation / last revision 09/20/2019 / 2

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

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REL: Recommended Exposure Limit
Flam. Gas 1: Flammable gases – Category 1
Flam. Aerosol 1: Aerosols – Category 1
Press. Gas: Gases under pressure – Compressed gas
Flam. Liq. 3: Flammable liquids – Category 3
Flam. Liq. 4: Flammable liquids – Category 4
Acute Tox. 3: Acute toxicity – Category 3
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

US