

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Reviewed on 01/28/2022

1 Identification

- **Product identifier**
- **Trade name:** 200 PMMA Series Resists in Anisole
- **Product number:**
 M730002, M730003, M730004, M730005, M730505, M730006, M730506, M730007, M730008, M730009,
 M730010, M730011, M730015
- **Application of the substance / the mixture** Photoresist
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 Kayaku Advanced Materials, Inc.
 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. Liq. 3 H226 Flammable liquid and vapor.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.
 Skin Irrit. 2 H315 Causes skin irritation.
 Eye Irrit. 2A H319 Causes serious eye irritation.
 STOT SE 3 H335 May cause respiratory irritation.

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



GHS02 GHS07

- **Signal word** Warning
- **Hazard-determining components of labeling:**
 Anisole

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Reviewed on 01/28/2022

Trade name: 200 PMMA Series Resists in Anisole

(Contd. of page 1)

· Hazard statements

H226 Flammable liquid and vapor.
 H332 Harmful if inhaled.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.

· Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 P261 Avoid breathing 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 to extinguish: Alcohol resistant foam, Fire-extinguishing powder, 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:

100-66-3	Anisole	80-100%
	 Flam. Liq. 3, H226;  Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Reviewed on 01/28/2022

Trade name: 200 PMMA Series Resists in Anisole

(Contd. of page 2)

Additional Components:

9010-88-2 Poly(methyl methacrylate-co-ethyl acrylate)

1-20%

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:

Do not induce vomiting unless instructed to do so by a physician. Wash out mouth with water and keep person at rest. Seek immediate medical attention.

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

Carbon dioxide

For safety reasons unsuitable extinguishing agents:

Water with full jet

Water

Special hazards arising from the substance or mixture

Containers may explode due to pressure increase when container is exposed to extreme heat. Vapors may travel a considerable distance to a source of ignition and flash back along vapor trail.

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.

Ensure adequate ventilation

Keep away from ignition sources

Environmental precautions: Do not allow to enter sewers/ surface or ground water.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Do not flush with water or aqueous cleansing agents

Reference to other sections

See Section 7 for information on safe handling.

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Reviewed on 01/28/2022

Trade name: 200 PMMA Series Resists in Anisole

See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.

(Contd. of page 3)

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
 Use only in well ventilated areas.
 Ensure good ventilation/exhaust at the workplace.
 Prevent formation of aerosols.
 Use only under yellow light
- **Information about protection against explosions and fires:**
 Keep ignition sources away - Do not smoke.
 Protect against electrostatic charges.
 Use explosion-proof apparatus / fittings and spark-proof tools.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and containers:**
 Store in inert atmosphere or keep well sealed to prevent the formation of peroxides and other oxidation products.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
 Keep container tightly sealed.
 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:**
 The product does not contain any relevant quantities of materials 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.
- **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.
- **Protection of hands:**



Protective gloves

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

- **Material of gloves** Nitrile rubber, NBR
- **Penetration time of glove material** Contact glove manufacture for break-through time.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Reviewed on 01/28/2022

Trade name: 200 PMMA Series Resists in Anisole

(Contd. of page 4)

· Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Liquid
Color:	Clear to light yellow
Odor:	Strong
Odor threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	184 °C (363.2 °F)

· Flash point: 43 °C (109.4 °F)

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature: 475 °C (887 °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:	Not determined.
Upper:	Not determined.

· Vapor pressure at 20 °C (68 °F): 0.4 hPa (0.3 mm Hg)

Density:	Not determined.
Relative density	See Table 1 Other Information
Vapor density	Not determined.
Evaporation rate	Not determined.

· Solubility in / Miscibility with

Water:	Water miscible No
--------	-------------------

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic:	Not determined.
----------	-----------------

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Reviewed on 01/28/2022

Trade name: 200 PMMA Series Resists in Anisole

(Contd. of page 5)

Kinematic:	Not determined.				
Other information	<i>Name</i>	<i>Number</i>	<i>Sp.Grav.</i>	<i>Vol. (%by wt.)</i>	<i>VOC(g/L)</i>
	200A2	M730002	0.996	98	975
	200A3	M730003	0.999	97	970
	200A4	M730004	1.000	96	960
	200A5	M730005	1.001	95	950
	200A5.5	M730505	1.001	94.5	945
	200A6	M730006	1.004	94	940
	200A6.5	M730506	1.005	93.5	940
	200A7	M730007	1.007	93	935
	200A8	M730008	1.009	92	930
	200A9	M730009	1.011	91	920
	200A10	M730010	1.013	90	910
	200A11	M730011	1.014	89	900
	200A15	M730015	1.018	85	865

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** No dangerous reactions known.
- **Conditions to avoid**
Heat, flames and sparks. Extremes of temperature and direct sunlight.
Contact with incompatible materials.
- **Incompatible materials:** Strong Oxidizing Agents, Strong Acids, Strong Bases
- **Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Phenol
methyl methacrylate

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

 · **LD/LC50 values that are relevant for classification:**

Oral	LD50	1200 mg/kg (Rat)
100-66-3 Anisole		
Oral	LD50	3700 mg/kg (Rat)
Dermal	LD50	>5000 mg/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Reviewed on 01/28/2022

Trade name: 200 PMMA Series Resists in Anisole

(Contd. of page 6)

· **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.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**

100-66-3 Anisole

EC50/24 h 40 mg/l (daphnia magna)

EC50/96 hr 162 mg/l (green algae)

LC50/48 hr 120 mg/L (Cyprinus carpio (common carp))

· **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 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even 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.

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**

· **DOT, ADR, IMDG, IATA**

UN1866

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Reviewed on 01/28/2022

Trade name: 200 PMMA Series Resists in Anisole

(Contd. of page 7)

· **UN proper shipping name**
 · **DOT, ADR**
 · **IMDG, IATA**

Resin solution
 RESIN SOLUTION

· **Transport hazard class(es)**
 · **DOT**



· **Class**
 · **Label**

3 Flammable liquids
 3

· **ADR, IMDG, IATA**



· **Class**
 · **Label**

3 Flammable liquids
 3

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

III

· **Environmental hazards:**
 · **Marine pollutant:**

No

· **Special precautions for user**
 · **Hazard identification number (Kemler code):**
 · **EMS Number:**
 · **Stowage Category**

Warning: Flammable liquids
 30
 F-E,S-D
 A

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

· **Transport/Additional information:**

· **DOT**
 · **Quantity limitations**

On passenger aircraft/rail: 60 L
 On cargo aircraft only: 220 L

· **ADR**
 · **Excepted quantities (EQ)**

Code: E1
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 1000 ml

· **IMDG**
 · **Limited quantities (LQ)**
 · **Excepted quantities (EQ)**

5L
 Code: E1
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 1000 ml

(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Reviewed on 01/28/2022

Trade name: 200 PMMA Series Resists in Anisole

(Contd. of page 8)

· UN "Model Regulation": UN 1866 RESIN SOLUTION, 3, III

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):

None of the ingredients is listed.

- 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)

None of the ingredients are listed.

· TLV (Threshold Limit Value)

None of the ingredients are listed.

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

None of the ingredients are listed.

· New Jersey State Right To Know List

100-66-3 Anisole

- California SCAQMD Rule 443.1 VOC's: See Table 1 - Section 9

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

- Hazard pictograms



GHS02 GHS07

- Signal word Warning

- Hazard-determining components of labeling:

Anisole

- Hazard statements

H226 Flammable liquid and vapor.

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/28/2022

Reviewed on 01/28/2022

Trade name: 200 PMMA Series Resists in Anisole

(Contd. of page 9)

H332 Harmful if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261 Avoid breathing 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 to extinguish: Alcohol resistant foam, Fire-extinguishing powder, 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.com)

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 01/28/2022 / 4

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 relatif au transport international 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

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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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

(Contd. on page 11)

Safety Data Sheet
acc. to OSHA HCS

Printing date 01/28/2022

Reviewed on 01/28/2022

Trade name: 200 PMMA Series Resists in Anisole*REL: Recommended Exposure Limit**Flam. Liq. 3: Flammable liquids – Category 3**Acute Tox. 4: Acute toxicity – Category 4**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**(Contd. of page 10)*

US