



Material Safety Data Sheet

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"TYSTRON (强耐特)" : 3510, 4513, 4520, 4590, AD90, 5520, 7511, 7520, 7590, AD75, 8520, 9520	First Issue: Apr.15.2004 Revised: Aug.04. 2006
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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

•PRODUCT NAME : " TYSTRON (强耐特) " : 3510, 4513, 4520, 4590, AD90, 5520, 7511, 7520, 7590,
AD75, 8520, 9520

•GENERAL USE : Resin for mechanical parts.

•PRODUCT DESCRIPTION: Polyacetal resin.

•MANUFACTURER

COMPANY NAME : Asahi-DuPont POM (Zhangjiagang) Company Limited

ADDRESS : No.1 Donghai Rd.(w), Yangtze Jiang International Chemical Industrial Park,
Zhangjiagang, Jiangsu, China

•EMERGENCY TELEPHONE NUMBER

Non-transportation :

Asahi-DuPont POM (Zhangjiagang) Company Limited

TEL : +86-(0)512-58389000 8 am - 5 pm Beijing Time M-F

FAX : +86-(0)512-58389016

2.COMPOSITION, INFORMATION ON INGREDIENTS

•COMPOSITION : Polyoxymethylene copolymer(Polyacetal) > 97%

Other additives < 3%

(Light stabilizer, heat stabilizer, lubricant, colorant, etc. are added, if necessary.)

•STRUCTURAL FORMULA : Polyoxymethylene copolymer(Polyacetal)

$-(\text{-CH}_2\text{O-})_n-$

•CAS No.: Polyoxymethylene copolymer(Polyacetal) ---- 24969-26-4

•UN CLASSIFICATION & UN No. : Not applicable

•OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200) : NONE

•THE COMPONENTS OF THIS PRODUCT ARE NOT DANGEROUS SUBSTANCES DEFINED IN
DIRECTIVE 67/548/EEC.



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3. HAZARDS IDENTIFICATION**•EMERGENCY OVERVIEW :**

Pellets with slight or no odor. Spilled pellets create slipping hazard.

Product burns once ignited.

When product burns, creates toxic vapors, gases or fumes. Molten plastic can cause severe thermal burns.

NOTE: Formaldehyde gas generated during drying and melting causes eye and skin irritation and nausea, if inhaled.

Formaldehyde gas should not be inhaled.

Formaldehyde is classified in Group 1A by IARC. (Carcinogenic to humans.)

Secondary operations, such as grinding, sanding, or sawing, can produce dust which may present an explosion or respiratory hazard.

•POTENTIAL HEALTH EFFECTS :**PRIMARY ROUTES EXPOSURE :**

EYE: Product may cause irritation or injury due to mechanical action.

SKIN: Product are not likely to cause skin irritation.

INHALATION: Product inhalation is unlikely due to physical form.

INGESTION: Oral toxicity data is not established.

Small amount swallowed incidental to normal handling operations are not likely to cause injury.

CHRONIC TOXICITY / CARCINOGENICITY :

NTP --- Not tested, OSHA --- Not regulated, IARC --- Not listed

See 11. TOXICOLOGICAL INFORMATION for formaldehyde.

MELT PROCESSING HEALTH EFFECTS: Molten plastic causes thermal burn.

Inhalation of formaldehyde gas from product may cause irritation and nausea.

MEDICAL RESTRICTIONS: Certain sensitive individuals and individuals with respiratory impairment may be affected by exposure to components in the processing fumes.

•POTENTIAL ENVIROMENTAL EFFECTS :

Pellets, if ingested by waterfowl or aquatic life, may mechanically cause adverse effects.



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4. FIRST-AID MEASURES

- EYE:** For molten plastic contact, immediately cool and wash with clean water for at least 15 minutes. Remove contact lens(es) immediately if worn, unless they have adhered to eyes.
Do not rub eye(s) to prevent irritation and damages to cornea(s). Seek immediate medical attention.
- SKIN:** Wash affected area thoroughly with water.
For molten plastic skin contact or skin contact with fume condensate, immediately wash thoroughly with soap and water. Do not attempt to peel plastic from skin. If irritation develops, seek medical attention.
- INHALATION:** Pellets not likely to be inhaled due to physical form.
When gas and/or fumes from molten plastic is inhaled, remove the victim from the area to fresh air and keep him at rest for recovery. If his condition does not improve, seek medical attention.
- INGESTION:** Not probable. If swallowed, seek medical attention.
- MELT PROCESSING:** For molten plastic skin contact, cool affected area rapidly with water and immediately seek medical attention.
WARNING: Do not attempt removal of plastic without medical assistance.
Do not use solvent for removal.
If inhalation of processing fumes causes irritation, leave contaminated area and breathe fresh air. If coughing, difficult breathing or any other symptoms develop, seek medical attention at once, **even if symptoms develop at a later time.**
- MELT PROCESSING:**
Molten or hot plastic: Wear long pants, long sleeves, well insulated and impervious gloves and face shield.
Inhalation: Use appropriate respirator for protection from organic vapors and acid gases.

5. FIRE FIGHTING MEASURES**•FLAMMABLE PROPERTIES**

FLASH POINT: about 320 °C (about 608 °F)

LOWER FLAMMABLE LIMIT: Not applicable

UPPER FLAMMABLE LIMIT: Not applicable

EXPLOSION DATA

IMPACT SENSITIVITY: Not sensitive to mechanical impact.

STATIC DISCHARGE: See 7. HANDLING AND STORAGE**•EXTINGUISHING MEDIA:**

Water, carbon dioxide, dry chemical, or foam. Water and water-jet are the best extinguishing media.

•FIRE FIGHTING INSTRUCTIONS:

Hazardous combustion products may include intense heat, carbon mono-oxide, carbon dioxide and formaldehyde. Wear full bunker gear including a positive pressure self-contained breathing apparatus in any closed space.



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6. ACCIDENTAL RELEASE MEASURES

- LAND SPILL & WATER SPILL:** Product is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water.
To prevent the danger of slips or falls, sweep or gather up product and place in proper container for disposal or recovery.

7. HANDLING AND STORAGE

- HANDLING:** Should process product under the recommended temperature range.

(180 -210 °C, 356 - 410 °F)

Do not inhale gas during processing of product. Provide for sufficient ventilation.

Do not hold product at high temperatures over an extended time.

(See 10. STABILITY AND REACTIVITY)

- STORAGE:** Store in a dry place away from excessive heat and ignition sources.

Avoid direct sunlight. Keep product away from electrostatic charge.

8. EXPOSURE CONTROL, PERSONAL PROTECTION

- EXPOSURE LIMIT VALUES:** Not established

- EXPOSURE CONTROLS:**

Occupational Exposure Controls

Engineering controls: In cases where possibilities of dust formation, gas formation, or vapor emission exist, provide local exhaust ventilation.

Personal Protection

EYE / FACE: Wear safety glasses or chemical goggles while using or handling product.

SKIN/HAND: When handling pellets, wear protective gloves. During melt processing, wear long pants, long sleeves, well insulated and impervious gloves and face shield

RESPIRATORY: When processing fumes are not adequately controlled, use appropriate respirator for protection from organic vapors and acid gases. When dust or powder from secondary operations (such as grinding, sanding, or sawing) is not adequately controlled, use appropriate respirator for protection from dust.

Environmental Exposure Controls

Particulates not otherwise classified

OSHA PEL: 15 mg/m³ (Total dust) 5 mg/m³ (Respirable fraction)ACGIH TLV-TWA(2000) : 10 mg/m³ (Inhalable particulate) 3 mg/m³ (Respirable particulate)



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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Physical state: Solid Color: White and colored

Odor: Slight or no odor

pH: Not applicable

Melting point/range: 155 - 175°C (311 - 347 °F)

Decomposition Temperature: about 260 °C (about 500°F)

Flash point: about 320 °C (about 608°F)

Auto Ignition Temperature: about 400 °C (about 752°F)

Flammability: Not applicable

Relative Density: 1.35 - 1.60 g/cm³ at 23°C(73° F)

Solubility: Negligible in water at 23°C(73°F)

10. STABILITY AND REACTIVITY**-STABILITY:** Stable under recommended conditions of storage.**-CONDITION TO AVOID:** Follow the recommended conditions below, to prevent decomposition. Processing at above 250 °C may result in releasing toxic and carcinogenic formaldehyde.

The following limits are general guide; Temperature and residence time may be lower for specific operating conditions.

---Resin temperature Optimum : 180 - 210 °C (356 - 410 °F)

Maximum : 250 °C (482 °F)

---Maximum cylinder residence time

For non-reinforced and non-colored resins : 70 min.(at 190 °C (374 °F))

60 min.(at 200 °C (392 °F))

40 min.(at 210 °C (410 °F))

For colored or reinforced resins, consult Asahi-DuPont POM (Zhangjiagang) Company Limited ("ADZ").

Do not mix product with pigments or additives other than those designated by ADZ, or with different resins or resin grades, as this may degrade product and cause decomposition.

In order to avoid autoignition / hazardous decomposition of hot thick masses of resin, purgings should be collected in small, flat shapes or thin strands to allow for rapid cooling in water.

-INCOMPATIBILITY WITH OTHER MATERIALS: Incompatible with strong acid, base and oxidizing agents.**-HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS:**

May include and are not limited to: Formaldehyde as decomposition gas.

When ignited, formaldehyde, carbon monoxide and carbon dioxide.

Reactivity with water is none. Hazardous polymerization will not occur.



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11. TOXICOLOGICAL INFORMATION

- EYE EFFECTS: Product is not considered primary eye irritant.
- SKIN EFFECTS: Product is not considered primary skin irritant.
- ACUTE TOXICITY: No data available
- SENSITIZATION: No data available
- MUTAGENICITY: No data available
- CARCINOGENICITY: Not listed in IARC
- TOXICITY OF FORMALDEHYDE :
 - Chronic inhalation studies in animals indicated that formaldehyde causes nasal cancer.
 - Carcinogenicity : IARC---1, NTP---Listed, OSHA---Listed, ACGIH---A2
 - OSHA PEL : 8hr.TWA 0.75ppm STEL 2ppm
 - ACGIH TLV-TWA (2004) : 0.3ppm ceiling
 - List of MAK and BAT Values 1999 :
 - MAK : 0.5ppm , 0.6mg/m³ Peak limitation category : I (Local irritants)
 - S (danger of sensitization)
 - Carcinogens category: 3
 - Pregnancy risk group: C (There is no reason to fear a risk of damage to the developing embryo or fetus when MAK and BAT values are observed.)

12. ECOLOGICAL INFORMATION

- ECOTOXICITY: Not expected to be acutely toxic, but pellets, if ingested by waterfowl or aquatic life, may mechanically cause adverse effects.
- PERSISTENCE AND BIODEGRADABILITY: No data available.
- BIOACCUMULATIVE POTENTIAL: No data available.

13. DISPOSAL CONSIDERATIONS

- Comply with all federal, state and local regulations.
- Do not dump product into sewers, on the ground or into any body of water.

14. TRANSPORT INFORMATION

NOTE : Avoid water and careless handling to prevent damage to the container.

•US DEPARTMENT OF TRANSPORTATION (D.O.T)

Hazardous Materials: Not applicable

•LAND TRANSPORT (ADR, RID)

Class: Not applicable

•SEA TRANSPORT (IMDG)

Class: Not applicable

•AIR TRANSPORT

Class: Not applicable



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15. REGULATORY INFORMATION

•**OSHA STATUS:** Not hazardous by definition of Hazard Communication Standard(29CFR1910.1200),

•**TSCA STATUS:** All components on TSCA Inventory

•**CERCLA REPORTABLE QUANTITY (40CFR117, 302):** Not applicable

•**SARA TITLE III**

SECTION 313(40 CFR 372) : Not applicable

SECTION 302 (40 CFR 355) : Not applicable

SECTION 311/ 312(40 CFR 370) : Not applicable

Please refer to any other federal, state and local regulations.

No labeling requirement under Directives 67/548/EEC and 1999/45/EEC.

Please refer to any other EU, national and local regulations.

16. Other information

•Refer to technical bulletin " ADZ POLYACETAL "TYSTRON (强耐特) " "

•**MSDS status:** Revised (Sec. 1,2,3,11,14,15,16)

•**INHIBITED APPLICATIONS:**

Never use "TYSTRON (强耐特) " in any medical device or equipment designed or intended for intracorporeal implantation or direct contact with transfusion fluids.

Do not use "TYSTRON (强耐特) " for tap water pipelines for permanent use, such as wall- or ground-buried pipelines, since it may decompose under prolonged contact with chlorine (bleaching agent) contained in tap water.

We have grades suitable for UL, FDA, Extrusion use. For specifics, refer to our company. ADZ encourages its customers to review their applications of ADZ products from the standpoint of human health and environmental quality.

To help ensure that ADZ products are not used in ways for which they are not intended or tested, ADZ representatives are willing to assist in dealing with ecological and product safety considerations.

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