

# SAFETY DATA SHEET

Regulation (EC) No 1907/2006 (REACH), Annex II  
(COMMISSION REGULATION (EU) No 453/2010)

Version 1  
Product Name Ecoworld® PBAT

Issue Date 01-Sep-2014  
Revision date 01-Sep-2014

## SECTION 1: Identification of the substance /mixture and of the company/undertaking

### 1.1. Product identifier

Product Name Ecoworld® PBAT  
REACH registration number No information available

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Biodegradable resin  
Uses advised against No information available

### 1.3. Details of the supplier of the safety data sheet

Supplier JINHUI ZHAOLONG NEW TECHNOLOGY CO.,LTD  
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### 1.4. Emergency telephone number

+86-351-8689356

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]  
Not classified

Classification according to Directive 67/548/EEC or 1999/45/EC  
Not classified

### 2.2. Label elements

Symbols/Pictograms None  
Signal word None  
Hazard Statements Not applicable  
Precautionary Statements Not applicable

**2.3. Other hazards**

No information available

**SECTION 3: Composition/information on ingredients****3.1. Polymer**

Chemical Name	EC No	CAS No	Weight-%	Classification according to Directive 67/548/EEC or 1999/45/EC	Classification according to Regulation (EC) No. 1272/2008 [CLP]
BDO	203-786-5	110-63-4	-	Xn;R22 R67	Acute Tox. 4 (H302) STOT SE 3 (H336)
TPA	202-830-0	100-21-0	-	Not classified	Not classified
Adipic acid	204-673-3	124-04-9	-	Xi; R36	Eye Irrit. 2 (H319)

**SECTION 4: First aid measures****4.1. Description of first aid measures****General advice**

Remove contaminated clothing and shoes. If symptoms persist, call a physician.

**Inhalation**

Not an expected route of exposure. If inhale dust, get medical advice/attention immediately.

**Skin Contact**

Product is not irritating to skin. Wash off with soap and water after handling.

**Eye contact**

Not an expected route of exposure. No first aid measures needed.

**Ingestion**

Not an expected route of exposure. If swallowed by mistake. Get medical attention immediately

**4.2. Most important symptoms and effects, both acute and delayed**

No information available.

**4.3. Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

**SECTION 5: Firefighting measures****5.1. Extinguishing media****Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable extinguishing media**

No information available

**5.2. Special hazards arising from the substance or mixture**

Thermal decomposition can lead to release of irritating and toxic gases and vapors

**5.3. Advice for firefighters**

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

## **SECTION 6: Accidental release measures**

### **6.1. Personal precautions, protective equipment and emergency procedures**

- Evacuate personnel to safe areas
- Ensure adequate ventilation, especially in confined areas
- Remove all sources of ignition
- Avoid contact with skin, eyes and inhalation of vapors
- Use personal protection recommended in Section 8

### **6.2. Environmental precautions**

- Prevent entry into waterways, sewers, basements or confined areas

### **6.3. Methods and material for containment and cleaning up**

- Collect in suitable containers for disposal according to local / national regulations (see Section 13)

### **6.4. Reference to other sections**

- See Section 7 for more information
- See section 8 for more information
- See section 13 for more information

## **SECTION 7: Handling and storage**

### **7.1. Precautions for safe handling**

- Handle in accordance with good industrial hygiene and safety practice
- Ensure adequate ventilation, especially in confined areas
- Avoid generation of dust
- Use personal protection recommended in Section 8

### **7.2. Conditions for safe storage, including any incompatibilities**

- Keep away from heat
- Keep locked up and out of reach of children
- Store in accordance with local regulations

### **7.3. Specific end use(s)**

- Apart from the uses mentioned in SECTION 1.2 no other specific uses are stipulated.

## **SECTION 8: Exposure controls/personal protection**

### **8.1. Control parameters**

Chemical Name	Australia	Austria	Belgium	Denmark	European Union
Adipic acid (CAS #: 124-04-9)	-	-	-	TWA: 5 mg/m <sup>3</sup>	-
TPA (CAS #: 100-21-0)	-	-	-	TWA: 10 mg/m <sup>3</sup>	-
BDO (CAS #: 110-63-4)	-	STEL 200 ppm STEL 800 mg/m <sup>3</sup> TWA: 50 ppm TWA: 200 mg/m <sup>3</sup>	-	-	-

Chemical Name	Latvia	France	Finland	Germany	Italy
Adipic acid (CAS #: 124-04-9)	TWA: 4 mg/m <sup>3</sup>	-	TWA: 5 mg/m <sup>3</sup>	-	-

Chemical Name	Poland	Portugal	Spain	Switzerland	Netherlands
Adipic acid (CAS #: 124-04-9)	STEL: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>	-	-

Chemical Name	Norway	United Kingdom	ACGIH TLV	OSHA PEL	NIOSH IDLH
Adipic acid (CAS #: 124-04-9)	-	-	TWA: 5 mg/m <sup>3</sup>	-	-
TPA (CAS #: 100-21-0)	-	-	TWA: 10 mg/m <sup>3</sup>	-	-

**Derived No Effect Level (DNEL)**

No information available.

**Predicted No Effect Concentration (PNEC)**

No information available.

**8.2. Exposure controls****Engineering Controls**

Use with local exhaust ventilation. Ensure adequate ventilation, especially in confined areas.

**Personal protective equipment**

Eye/face protection	Wear safety glasses with side shields (or goggles) if necessary
Hand Protection	Wear protective gloves
Skin and body protection	Suitable protective clothing
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment

**Environmental exposure controls**

Do not allow into any sewer, on the ground or into any body of water.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Appearance	Solid
Color	White
Odor	Odorless
Odor Threshold	No information available
pH	No information available

<b>Melting point/freezing point</b>	20°C(BDO) 151°C(Adipic acid)
<b>Boiling point / boiling range</b>	230°C(BDO) ca. 330 °C(Adipic acid)
<b>Flash point</b>	130°C(BDO) 260°C(TPA) 196°C( Adipic acid)
<b>Evaporation rate</b>	No information available
<b>Flammability (solid, gas)</b>	Not flammable
<b>Flammability Limit in Air</b>	No information available
<b>Vapor Pressure</b>	<1mbar(20°C)(BDO)
<b>Vapor density</b>	No information available
<b>Density</b>	1.26(g/cm <sup>3</sup> )(polymer)
<b>Relative density</b>	1.26
<b>Bulk density</b>	No information available
<b>Specific gravity</b>	No information available
<b>Water solubility</b>	Mixable(BDO) 15 mg/l(20 °C)(TPA) 15 g/l(20 °C)( Adipic acid)
<b>Partition coefficient</b>	-0.83(BDO) 2(TPA) 0.081( Adipic acid)
<b>Autoignition temperature</b>	370°C(BDO) 496°C(TPA) 420°C( Adipic acid)
<b>Decomposition temperature</b>	>300°C(TPA)
<b>Kinematic viscosity</b>	Not applicable
<b>Dynamic viscosity</b>	71.5mPa · s(25°C)(BDO)
<b>Explosive properties</b>	Not an explosive
<b>Oxidizing properties</b>	No information available

**9.2. Other information**

No information available

**SECTION 10: Stability and reactivity****10.1. Reactivity**

No information available.

**10.2. Chemical stability**

Stable under normal conditions.

**10.3. Possibility of hazardous reactions**

None under normal processing.

**10.4. Conditions to avoid**

Heat, flames and sparks

**10.5. Incompatible materials**

Strong oxidizing agents. Strong acids. Strong bases.

**10.6. Hazardous decomposition products**

None under normal use conditions

**SECTION 11: Toxicological information****11.1. Information on toxicological effects****Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
BDO(CAS #: 110-63-4)	1530 mg/kg bw(rat)	-	-
TPA(CAS #: 100-21-0)	>6400 mg/kg bw(rat)	-	-
Adipic acid (CAS #: 124-04-9)	5560 mg/kg bw(rat)	-	> 7.7 mg/L ( Rat ) 4 h > 31 mg/L ( Rat ) 1 h

**Skin corrosion/irritation**

Non-irritating to the skin.

**Serious eye damage/eye irritation**

No eye irritation.

**Sensitization**

No sensitization responses were observed.

**Germ cell mutagenicity**

No information available.

**Carcinogenicity**

No information available.

**Reproductive toxicity**

No information available.

**STOT - single exposure**

No information available.

**STOT - repeated exposure**

No information available.

**Aspiration hazard**

No information available.

**SECTION 12: Ecological information****12.1. Toxicity**

Chemical Name	Algae/aquatic plants EC50	Fish LC50	Crustacea EC50
BDO(CAS #: 110-63-4)	500: 72 h Desmodesmus subspicatus mg/L EC50	-	-
Adipic acid (CAS #:124-04-9)	31.3: 72 h Desmodesmus subspicatus mg/L EC50 26.6: 96 h Desmodesmus subspicatus mg/L EC50	97: 96 h Pimephales promelas mg/L LC50 static 230: 96 h Leuciscus idus mg/L LC50 static	85.7: 48 h Daphnia magna mg/L EC50

**12.2. Persistence and degradability**

No information available.

**12.3. Bioaccumulative potential**

Chemical Name	Partition coefficient
Adipic acid (CAS #: 124-04-9)	0.081

**12.4. Mobility in soil**

No information available

**12.5. Results of PBT and vPvB assessment**

PBT/vPvB assessment information is not available as chemical safety assessment not conducted.

**12.6. Other adverse effects**

No information available

**SECTION 13: Disposal considerations****13.1. Waste treatment methods**

Waste from residues/unused products	Disposal should be in accordance with applicable regional, national and local laws and regulations
Contaminated packaging	Disposal should be in accordance with applicable regional, national and local laws and regulations

**SECTION 14: Transport information**

14.1 UN Number	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions	No information available
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**  
**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Take note of Directive 94/33/EC on the protection of young people at work

Take note of Directive 92/85/EC on the protection of pregnant and breastfeeding women at work

**International Inventories**

Component	TSCA	DSL/NDSL	EINECS/EL INCS	ENCS	IECSC	KECL	PICCS	AICS
BDO 110-63-4	X	X	X	X	X	X	X	X
TPA 100-21-0	X	X	X	X	X	X	X	X
Adipic acid 124-04-9	X	X	X	X	X	X	X	X

"-" Not Listed

"X" Listed

**15.2. Chemical safety assessment**

No information available

**SECTION 16: Other information**

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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**Key or legend to abbreviations and acronyms used in the safety data sheet**

**TWA** - TWA (time-weighted average)

**STEL** - STEL (Short Term Exposure Limit)

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**Full text of H-Statements referred to under section 3**

H302- Harmful if swallowed.

H319- Causes serious eye irritation.

H336- May cause drowsiness or dizziness.



**Full text of R-phrases referred to under sections 2 and 3**

R22- Harmful if swallowed.

R36- Irritating to eyes.

R67- Vapours may cause drowsiness and dizziness.

**Disclaimer**

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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