Section 1. Identification of the substance/ mixture and of the company/ undertaking

1.1 Product identifier
Product name: **POLYREX ®**
This safety data sheet pertains to the following products:
PH-55Y, PH-60, PH-88, PH-88S, PH-888H and PH-888G

1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses: Mixture used for the production of molded plastic articles

1.3 Details of the supplier of the Safety Data Sheet
Supplier: Chi Mei Corporation
Address: 59-1, San Chia, Jen Te Village
Tainan County
Taiwan R.O.C.
Telephone: +886 6 2663000 Ext. 1347
Email: service@mail.chimei.com.tw

1.4 Emergency telephone number
Emergency telephone : +886 6 2663000 Ext. 2501

Section 2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC: Not classified as hazardous (polymeric state)

Classification according to Regulation (EC) N° 1272/2008 (CLP): Not classified as hazardous (polymeric state)

2.2 Label elements

Not labelled as hazardous

2.3 Other hazards
vPvB/PBT assessment: not available

Section 3. Composition/information on ingredients

3.1 Composition of the substance/ preparation

Substance or Preparation Substance
Content

CAS	Name	content
9003-55-8	Styrene-butadiene-copolymer, HIPS	＞96 %
-	Additives	≦4 %

Impurities Contributing to Hazard None

3.2 Additional information:

Preparation does not contain dangerous substances above limits that need to be mentioned in this section according to applicable legislation.

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Reach Info:

	Pre-registration No.	Registration No.
Styrene	05-2117149462-45-0000	01-2119457861-32-0006 01-2119457861-32-0007 01-2119457861-32-0057 01-2119457861-32-0065 01-2119457861-32-0081
Buta-1,3-diene	05-2117149467-35-0000	01-2119471988-16-0044

3.3 For full text of R- and H-phrases: see section 16

Section 4. First-aid measures

4.1 Description of first aid measures

General notes: Remove affected persons from the danger area, at the same time ensuring your own safety. Remove all contaminated clothing immediately

Following inhalation: In case of gases evolving from melted resin, move subject to fresh air. Treat symptomatically

Following skin contact: In case of pellets or powder, wash with water. In case of smelt, wash affected skin area and clothing with plenty of (soap and) water. Seek medical advice

Following eye contact: In case of pellets or powder, flush with plenty of water for at least 15 minutes. Seek medical advice if any dust particles still remain.
In case of gases evolving from melted resin of high temperature, flush with plenty of water for at least 15 minutes. Seek medical advice if necessary

Following ingestion: Induce vomiting. Rinse mouth with water. Seek medical advice if necessary

4.2 Most important symptoms & effects both acute & delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

4.3 Indication of any immediate medical attention and special treatment needed: -

If burn is present, treat as any thermal burn, after decontamination. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing agents: Water fog or fine spray, foam. Only in case of small fires: Dry chemical fire extinguishers, carbon dioxide fire extinguishers, Sand, earth.

For safety reasons unsuitable extinguishing agents: High power water jet

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5.2 Special hazards arising from the substance or mixture: -

During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon dioxide. Carbon monoxide.

5.3 Advice for firefighters

Protective equipment: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Further measures: -

5.4 Additional information:

Hazchem-Code: -
Cool endangered containers with water jetspray.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment & emergency procedures

Pellets or powder remained on ground may cause slipping
Wear protective equipment
Ensure adequate ventilation
Keep away from ignition sources
Keep unprotected persons away

6.2 Environmental precautions

Gather pellets and powder thoroughly to avoid birds or fishes taking from draining water.
Do not allow product to reach sewage system or water bodies. Inform respective authorities in case product reaches water, sewage system or soil

6.3 Methods and material for containment and cleaning up

Avoid generation of dust. Remove all sources of ignition.
Collect dry and place in appropriate containers for disposal. Subsequent cleaning.
Particular danger of slipping when spread on the ground.

6.4 Reference to other sections

See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment.

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Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures: Provide adequate ventilation, and local exhaust as needed. Do not breathe dust. In the case of the formation of dust: Withdraw by suction. Molten material: Avoid contact with the substance.

Measures to prevent fire: Prevent from fire around handling area

Measures to prevent aerosol and dust generation: maintain good housekeeping standards to prevent accumulation of dust. To avoid dust explosion resulting from the existence of powder, electrostatics eliminators and grounding should be fixed to such equipment as air transferring pipes, bag filters and hoppers. Use electrically conductive filters for bag filters.

Measures to protect the environment: -

Advice on general occupational hygiene: -

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions: Keep the material at a cool dry place. Protect from direct sunlight, rain and violent temperature fluctuation. Fire is inhibited around storage area.

Requirements for storage rooms and vessels: Store in a well-ventilated place. Keep container tightly closed. Protect against heat /sun rays.

Suitable materials and coating: -

Unsuitable materials or coatings: -

Further information on storage conditions: -

7.3 Specific end use(s)

Recommendations: See the recommended processing condition and technical data sheet on this product for further information.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Exposure Limits: Although some of the additives used in this product may have exposure guidelines, these additives areencapsulated in the product and no exposure would be expected under normal handling conditions.

8.2 Exposure control

Appropriate engineering controls: Install eyes washer and shower in the place of operation. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits
Personal protection:

- Respiratory protection: Wear masks for cleaning molding machines
- Hand protection: Heat-insulting gloves when handling molten form
- Eye protection: Wear safety glasses for general purpose. Wear chemical goggles for cleaning molding machines
- Skin and body protection: Gloves necessary for handling melted resin
- Hygiene measures: Wash hands after handling

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8.3 Environmental exposure controls

Product related measures to prevent exposure: None specific
Instruction measures to prevent exposure: None specific
Organizational measures to prevent exposure: None specific
Technical measures to prevent exposure: None specific
Environmental exposure controls: Do not allow product to reach sewage system or water bodies

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Physical state: solid, granulate
Odour	Odourless or negligible
Colour	Clear
Odour threshold	No test data available
pH	Not applicable
Melting point / freezing point	90 - 135 °C *Literature*
Initial boiling point and boiling range	Not applicable
Flash point	>280 °C
Evaporation rate (Butyl Acetate = 1)	Not applicable to solids
Flammability (solid, gas)	No
Upper/lower flammability or explosive limits	Not applicable
Vapour pressure	Not applicable
Vapour density (air = 1)	Not applicable
Relative density (H_2O = 1)	1.04 – 1.06 *Literature*
Bulk density	Not available
Solubility in water (by weight)	Insoluble
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	>427 °C *Literature*
Decomposition temperature	>300 °C
Viscosity	Not applicable
Explosive properties	Not explosive
Oxidizing properties	Not oxidizing

9.2 Other safety information: No test data available

Section 10. Stability and reactivity

10.1 Reactivity: Non-reactive under normal handling and storage conditions

10.2 Chemical stability: Stable under normal handling and storage conditions

10.3 Possible hazardous reaction: Polymerization will not occur.

10.4 Conditions to avoid: Avoid temperatures above 300 °C. Exposure to elevated temperatures can cause product to decompose.

10.5 Incompatible materials: Strong oxidizing agents, Gasoline, aldehydes, ketone

10.6 Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Processing may release fumes and other decomposition products. At temperatures exceeding melt temperatures, polymer fragments can be released. Fumes can be irritating. Decomposition products can include and are not limited to: Combustible gases. In case of fire may be liberated: smoke, Styrene-Monomer, aldehydes and acids (organic), carbon monoxide and carbon dioxide (CO_2).

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Section 11. Toxicological information

11.1 Information on toxicological effects

Toxicological effects:

- Acute toxicity (oral): Based on available data, the classification criteria are not met. Mild acute toxicity
- Acute toxicity (dermal): Based on available data, the classification criteria are not met. Mild acute toxicity
- Acute toxicity (inhalative): Based on available data, the classification criteria are not met. Mild acute toxicity
- Skin corrosion/irritation: Lack of data.
- Eye damage/irritation: Lack of data.
- Sensitisation to the respiratory tract: Lack of data. The chemical structure does not suggest a specific alert for such an effect.
- Skin sensitisation: Based on available data, the classification criteria are not met. Not sensitizing
- Germ cell mutagenicity/Genotoxicity: Lack of data. The chemical structure does not suggest a specific alert for such an effect.
- Carcinogenicity: Based on available data, the classification criteria are not met.
- Reproductive toxicity: Lack of data. The chemical structure does not suggest a specific alert for such an effect.
- Effects on or via lactation: Lack of data.
- Specific target organ toxicity (single exposure): Lack of data.
- Dusts: Can cause skin, eye and respiratory tract irritation.
- Specific target organ toxicity (repeated exposure): Lack of data.
- Processing, thermal hazards: Vapours: Can cause skin, eye and respiratory tract irritation.

Symptoms

- Dust:Can cause skin, eye and respiratory tract irritation.
- The melted product can cause severe burns.
- Irritating to eyes, respiratory system and skin.
- In case of ingestion: Swallowing may cause gastrointestinal irritation and pain of guts.

Section 12. Ecological information

12.1 Toxicity

Not expected to be acutely toxic, but material in pellet or bead form may mechanically cause adverse effects if ingested by waterfowl or aquatic life.

12.2 Persistence and degradability

Further details:

- Biodegradation: Product is not readily biodegradable.
- Degradation at UV-radiation/sunlight
- Environmental half-life period: >=100 days (estimated)
- The product is likely to persist in the environment.

Effects in sewage plants:

- In sewage treatment plants it may be separated mechanically.

12.3 Bioaccumulative potential

To avoid bioaccumulation plastics should not be disposed in the sea or in other water environments.

12.4 Mobility in soil

In the terrestrial environment, material is expected to remain in the soil., In the aquatic environment, material will sink and remain in the sediment.

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12.5 Results PBT & vPvB assessment

This mixture has not been assessed for persistence, bioaccumulation and toxicity (PBT).

12.6 Other adverse effects:

General information: Do not allow to enter into ground-water, surface water or drains.

12.7 Additional information: -

Section 13. Disposal considerations

13.1 Waste treatment methods

Product / Packaging disposal: Dispose in accordance with the current local regulations.
Waste codes according to European Waste Catalogue: -
Waste treatment-relevant information: Inadequate incineration may generate toxic gases such as CO, HCN, AN and SM
Sewage disposal-relevant information: -
Other disposal recommendations: -

Section 14. Transport information

ADR/RID
14.1 UN number
Not applicable
14.2 UN proper shipping name
Proper Shipping Name: NOT REGULATED
14.3 Transport hazard class(es)
Not applicable
14.4 Packing Group
Not applicable
14.5 Environmental hazards
Not considered environmentally hazardous based on available data
14.6 Special precautions for user
Special Provisions: no data available
Hazard identification No:no data available

ADNR / ADN
14.1 UN number
Not applicable
14.2 UN proper shipping name
Proper Shipping Name: NOT REGULATED
14.3 Transport hazard class(es)
Not applicable
14.4 Packing Group
Not applicable
14.5 Environmental hazards
Not considered environmentally hazardous based on available data
14.6 Special precautions for user
no data available

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IMDG
14.1 UN number
Not applicable
14.2 UN proper shipping name
Proper Shipping Name: NOT REGULATED
14.3 Transport hazard class(es)
Not applicable
14.4 Packing Group
Not applicable
14.5 Environmental hazards
Not considered environmentally hazardous based on available data
14.6 Special precautions for user
EMS Number: Not applicable
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

ICAO/IATA
14.1 UN number
Not applicable
14.2 UN proper shipping name
Proper Shipping Name: NOT REGULATED
14.3 Transport hazard class(es)
Not applicable
14.4 Packing Group
Not applicable
14.5 Environmental hazards
Not considered environmentally hazardous based on available data
14.6 Special precautions for user
no data available

Section 15. Regulatory information

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

Authorization and / or restrictions on use: None
Other EU regulations: The following substances are under European Seveso regulation:

European Inventory of Existing Commercial Chemical Substances (EINECS)
This product is a polymer according to the definition in Directive 92/32/EEC (7th Amendment to Directive 67/548/EEC) and all of its starting materials and intentional additives are listed in the European Inventory of Existing Commercial Chemical Substances (EINECS) or in compliance with European (EU) chemical inventory requirements.

Other national regulations: -

15.2 Chemical Safety Assessment

For this substance a chemical safety assessment is not yet required.

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Section 16. Other information

16.1 Indication of changes

Version 1: First issue according to Regulations (EC) 1907/2006 (REACH) & 1272/2008 (CLP)

16.2 Abbreviations and acronyms

AGS	Ausschuss für Gefahrstoffe	LoW	List of Waste
AF	Assessment Factor	MARPOL	MARine POLlution
BCF	BioConcentration Factor	MIE	Minimum Ignition Energy
CAS	Chemical Abstract Service	N°EC	European Commission number
CMR	Carcinogenic, Mutagenic and Reprotoxic	NFPA	National Fire Protection Association
CSR	Chemical Safety Report	NIOSH	National Institute of Occupational Safety and Health
DFG	German Research Foundation	NOEC	No Obseved Effect Concentration
DNEL	Derived No Effect Level	NOELR	No Observed Effect Loading Rate
EC	European Commission	OECD	Organisation for Economic Co-operation and Development
EC50	Effective Concentration (required to induce a 50% effect)	OEL	Occupational Exposure Limit
EEC	European Economic Community	OSHA	Occupational Safety and Health Administration
EWC	European Waste Catalogue Code	PBT	Persistant Bioaccumulable Toxique
IDLH	Immediately Dangerous to Life or Health	PNEC	Previsible Non Effect Concentration
IBC	International Bulk Chemical	QSAR	Quantitative Structure-Activity Relationship
Koc	Soil/Water Partition Coefficient	STOT	Specific Target Organ Toxicity
Kow	Octanol/Water Partition Coefficient	TCLo	Toxic Concentration Low
LC50	Lethal Concentration 50	TDLo	Toxic Dose Low
LD50	Lethal Dose 50	UN	United Nations
LEL	Lower Explosive Limit	UVCB	Unknown or Variable Composition Complex Reaction Products, or Biological Materials
LL100	Lethal Loading	vPvB	very Persistent, very Bioaccumulative
LOEC	Lowest Observed Effect Concentration		

16.3 Key literature references and sources for data

http://esis.jrc.ec.europa.eu/
http://echa.europa.eu/
http://gestis-en.itrust.de

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16.4 Relevant R-phrases and/or H-statements (number and full text):

H220	Extremely flammable gas	R10	Flammable
H225	Highly flammable liquid and vapour	R11	Highly flammable
H226	Flammable liquid and vapour	R12	Extremely flammable
H301	Toxic if swallowed	R20	Harmful by inhalation
H311	Toxic in contact with skin	R23/24/25	Toxic by inhalation, in contact with skin and if swallowed
H315	Causes skin irritation		
H317	May cause an allergic skin reaction	R36	Irritating to eyes
H318	Causes serious eye damage	R37	Irritating to respiratory system
H319	Causes serious eye irritation	R38	Irritating to skin
H331	Toxic if inhaled	R40	Limited evidence of a carcinogenic effect
H332	Harmful if inhaled	R41	Risk of serious damage to eyes
H335	May cause respiratory irritation	R43	May cause sensitisation by skin contact
H340	May cause genetic defects	R45	May cause cancer
H350	May cause cancer	R46	May cause inheritable genetic damage
H351	Suspected of causing cancer	R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
H400	Very toxic to aquatic life		
H411	Toxic to aquatic life with long lasting effects	R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

16.5 Training advice: -

16.6 Further information: According to the guidance version 2.0 for monomers and polymers from the European Chemicals Agency dated as of April 2012, the classification of the polymer takes into account the classification of all its constituents, such as unreacted monomers. These constituents in fact should be taken into account for classification of the polymer. This means that the same classification methods as for mixture should be applied to polymer substances.
In order to determine a classification for the studies about the water soluble fraction as well as the absorption should be performed on the polymer as such.

To the best of our knowledge and belief, the information contained herein is accurate and obtained from sources believed to be reliable. No representation is made that the information is complete or the material is suitable for all purposes. The final determination as to the suitability of the user's intended use of the material is the sole responsibility of the user. All materials may present unknown hazards even when used in common applications and accordingly, it is the sole responsibility of the user to understand and address all potential hazards, including those identified herein. The information set forth in Sections 11 and 12 reflects data available as of the date hereof. It is anticipated that such data will be updated.

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