

1 Identification of the substance/preparation and of the company/undertaking

PRODUCT NAME:	AKEMI PUTTY
PART No.:	AKEMI
SUPPLIER:	Limbtex Ltd, Unit 1, Elizabeth Business Park Tigers Close, South Wigston Leicestershire
TEL:	LE18 4WS 0116 278 5440

2 Hazards identification

Hazard description:



Xn Harmful

Information concerning particular hazards for human and environment:

Vapours of the product are heavier than air and may accumulate on the ground, in mines, drains or cellars with higher concentration.
Contact with skin and inhalation of aerosols/ vapours of the preparation should be avoided.

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

R 10 Flammable.

R 20 Harmful by inhalation.

R 36/38 Irritating to eyes and skin.

R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Classification system:

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

GHS label elements



Warning

H226 - Flammable liquid and vapour.



Warning

H332 - Harmful if inhaled.

H315 - Causes skin irritation.

H319 - Causes serious eye irritation.

H412 - Harmful to aquatic life with long lasting effects.

Prevention:

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P241 Use explosion-proof electrical/ventilating/lighting/equipment.

PRODUCT NAME: AKEMI PUTTY

- (Contd. of page 1)
- Response: P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - Disposal: P321 Specific treatment (see on this label).
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
 - Additional information: During processing and product hardening the network generator is released as fume. Consequently, take care for adequate air conditioning and for fume exhaustion on request.

3 Composition/information on ingredients

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

· Dangerous components:

CAS: 100-42-5 EINECS: 202-851-5 Index number: 601-026-00-0	styrene ☒ Xn, ☒ Xi; R 10-20-36/38 Warning: ⚠ 2.6/3; ⚠ 3.1.1/4, 3.2/2, 3.3/2	12.5-25%
CAS: 7779-90-0 EINECS: 231-944-3 Index number: 030-011-00-6	trizinc bis(orthophosphate) ☒ N; R 50/53 Warning: ⚠ 4.1.A/1, 4.1.C/1	1-5%
CAS: 1314-13-2 EINECS: 215-222-5 Index number: 030-013-00-7	zinc oxide ☒ N; R 50/53 Warning: ⚠ 4.1.A/1, 4.1.C/1	<1%

- Additional information: For the wording of the listed risk phrases refer to section 16.

4 First-aid measures

- General information: Immediately remove any clothing soiled by the product.
Take affected persons out into the fresh air.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Position and transport stably in side position.
- After inhalation: Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
- After skin contact: Clean with water and soap. If possible, also wash with polyethylene glycol 400.
If skin irritation continues, consult a doctor.
- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing: Do not induce vomiting; call for medical help immediately.
Drink plenty of water and provide fresh air. Call for a doctor immediately.
- Information for doctor: With reference to section 2 the formulation contains styrene in the indicated mass concentration range. Styrene fumes will preferably be incorporated by inhalation via respiratory tract, skin resorption is currently considered as an inferior way of incorporation. In case of inhalation styrene is absorbed in a 60-90% range. Distribution in organism occurs rapidly, the maximum blood concentration can be analyzed after one hour after incorporation. Styrene exposition affects skin, mucous membranes, and central nervous system (CNS).

(Contd. on page 3)

PRODUCT NAME: AKEMI PUTTY

(Contd. of page 2)

Acute damages / risks to health:

In case of styrene poisoning mainly damages to and interactions with central nervous system (CNS) arise. In concentration ranges above 200 ml/m³ symptoms such as fatigue, nausea, imbalance and prolonged response times are observed.

Chronical health risks:

Effects at central and peripheral nervous system and respiratory tract are evident in literature.

Main health risks are:

- prolonged response times
- reduced cognitive performance, partial amnesia
- retardation of nervous impulse transition speed
- disturbances of pulmonary function

· The following symptoms may occur:

Breathing difficulty
Headache
Dizziness
Dizziness
Nausea

· Hazards

Profuse sweating

Danger of impaired breathing.

Skin contact with polyester and epoxy resin solutions as ingredient of the product should be avoided due to risks of skin irritations or allergic skin appearances. If occasional hand contact can not be avoided, protection gloves, proper protection ointments and protective agents generating a protective layer on the skin were applied.

· Treatment

If swallowed, gastric irrigation with added, activated carbon.

If swallowed or in case of vomiting, danger of entering the lungs.

5 Fire-fighting measures

· Suitable extinguishing agents:

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· For safety reasons unsuitable extinguishing agents:

Water with full jet

· Special hazards caused by the substance, its products of combustion or resulting gases:

In case of fire, the following can be released:

Carbon monoxide (CO)

Hydrogen cyanide (HCN)

Formation of toxic gases is possible during heating or in case of fire.

Under certain fire conditions, traces of other toxic gases cannot be excluded.

· Protective equipment:

Wear self-contained respiratory protective device.

Do not inhale explosion gases or combustion gases.

Wear fully protective suit.

· Additional information

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures

· Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources.

Use respiratory protective device against the effects of fumes/dust/aerosol.

(Contd. on page 4)

PRODUCT NAME: AKEMI PUTTY

(Contd. of page 3)

- **Measures for environmental protection:** Inform respective authorities in case of seepage into water course or sewage system.
Do not allow product to reach sewage system or any water course.
Do not allow to enter sewers/ surface or ground water.
- **Measures for cleaning/collecting:** Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Additional information:** See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Information for safe handling:** Store in cool, dry place in tightly closed receptacles.
Keep away from heat and direct sunlight.
Keep receptacles tightly sealed.
Ensure good ventilation/exhaustion at the workplace.
Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).
Prevent formation of aerosols.
Use only in well ventilated areas.
- **Information about fire - and explosion protection:** Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Protect from heat.
Fumes can combine with air to form an explosive mixture.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
Store only in the original receptacle.
Prevent any seepage into the ground.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
Do not store together with acids.
Do not store together with alkalis (caustic solutions).
Store away from oxidizing agents.
- **Further information about storage conditions:** Protect from frost.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Store receptacle in a well ventilated area.

8 Exposure controls/personal protection

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

Ingredients with limit values that require monitoring at the workplace:

100-42-5 styrene


WEL	Short-term value: 1080 mg/m ³ , 250 ppm Long-term value: 430 mg/m ³ , 100 ppm
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(Contd. on page 5)

PRODUCT NAME: AKEMI PUTTY

(Contd. of page 4)

- Additional information: The lists valid during the making were used as basis.
 - **Personal protective equipment:**
 - General protective and hygienic measures:

The usual precautionary measures are to be adhered to when handling chemicals.
Do not eat, drink, smoke or sniff while working.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Do not inhale gases / fumes / aerosols.
Apply solvent resistant skin cream before starting work.
Use skin protection cream for skin protection.
 - Respiratory protection: In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
Short term filter device:
Filter A/P2
 - Protection of hands: Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
Akemi skin protection agent recommendation for preventive skin shelter without use of protective gloves:
ARRETIL (<http://www.stoko.com>)
Akemi skin protection agent recommendation for preventive skin shelter in application and combination of protective gloves:
STOKO EMULSION (<http://www.stoko.com>)
Akemi skin protection recommendation for skin cleaning after product handling:
SLIG SPEZIAL (<http://www.stoko.com>)
Akemi skin protection agent recommendation for skin aftercare:
STOKO VITAN (<http://www.stoko.com>)
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Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
The protection gloves to be used have to comply with the specifications of the directive 89/686/EC and the directive derived decree EN374, respectively, e.g. the above listed protection glove type. The mentioned permeation times' data were generated and verified with material samples of the recommended protection glove type in the scope of laboratory analyses of the company KCL GmbH in compliance with EN374.
This recommendation refers exclusively to the material safety data sheet referenced product delivered by Akemi and the indicated field of application. In case of product dilution or in case of mixture with different substances or chemicals, and in condition of EN374 deviation the producer of CE-approved protection gloves must be contacted for detailed information (e.g., KCL GmbH, Germany, 36124 Eichenzell, internet: <http://www.kcl.de>).
- Material of gloves Fluorocarbon rubber (Viton)
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
 - Penetration time of glove material The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
Value for the permeation: Level \geq 6, 480 min

(Contd. on page 6)

PRODUCT NAME: AKEMI PUTTY

(Contd. of page 5)

- For the permanent contact gloves made of the following materials are suitable: Fluorocarbon rubber (Viton)
Vitoject (KCL, Art No. 890)
- As protection from splashes gloves made of the following materials are suitable: Fluorocarbon rubber (Viton)
Vitoject (KCL, Art No. 890)
Nitrile rubber, NBR
Camatril (KCL, 730, 731, 732, 733)
Butyl rubber, BR
Butoject (KCL, Art No. 897, 898)
- Not suitable are gloves made of the following materials: Nitrile rubber, NBR
Rubber gloves
Neoprene gloves
Natural rubber, NR
Leather gloves
Strong material gloves
- Eye protection:  Tightly sealed goggles
- Body protection: Solvent resistant protective clothing

9 Physical and chemical properties**· General Information**

<u>Form:</u>	Pasty
<u>Colour:</u>	According to product specification light yellow
<u>Odour:</u>	Specific type

· Change in condition

<u>Melting point/Melting range:</u>	Undetermined.
<u>Boiling point/Boiling range:</u>	145°C

· **Flash point:** 32°C

· **Ignition temperature:** 480°C

· **Self-igniting:** Product is not selfigniting.

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

· Explosion limits:

<u>Lower:</u>	1.2 Vol %
<u>Upper:</u>	8.9 Vol %

· **Vapour pressure at 20°C:** 6 hPa

· **Density at 20°C:** 1.842 g/cm³

· **Solubility in / Miscibility with water:** Not miscible or difficult to mix.

· Solvent content:

<u>Organic solvents:</u>	13.5 %
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(Contd. on page 7)

PRODUCT NAME: AKEMI PUTTY

(Contd. of page 6)

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
No decomposition if used and stored according to specifications.
- **Materials to be avoided:**
- **Dangerous reactions** Exothermic polymerization.
Reacts with peroxides and other radical forming substances.
Reacts with alkali (lyes).
Reacts with acids.
- **Dangerous decomposition products:** Carbon monoxide and carbon dioxide
Phosphorus compounds

11 Toxicological information· **Acute toxicity:**· LD/LC50 values relevant for classification:**100-42-5 styrene**

Oral	LD50	>2000 mg/kg (rat)
Inhalative	LC50/4 h	11.8 mg/l (rat)
	LC50/4h	9.5 mg/m ³ (mouse)

7779-90-0 trizinc bis(orthophosphate)

Oral	LD50	>5000 mg/kg (rat)
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- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Experience with humans:** After incorporation and inhalation styrene predominantly will be metabolized in the organism to mandelic and phenylglyoxylic acid and metabolites will pass through urine excretion.
- **Additional toxicological information:** The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Harmful
Irritant

12 Ecological information· **Ecotoxicological effects:**· Acquatic toxicity:**100-42-5 styrene**

EC10/16h	72 mg/l (pseudomonas putida)
EC50	5.5 mg/l (Photobac. phosphoreum)
EC50/16h	> 72.0 mg mg/l (pseudomonas putida)
EC50/48h	0.56 mg/l (green alga)
	4.7 mg/l (daphnia magna)
EC50/72u	>1-<10 mg/l (green alga)
EC50/8d	> 200 mg/l (Scenedesmus quadricauda)
IC5/8d	> 200 mg/l (Scenedesmus quadricauda)

(Contd. on page 8)

PRODUCT NAME: AKEMI PUTTY

(Contd. of page 7)

IC50/72h	1.4 mg mg/l (senastrum capricornutum)
LC50/96h	>1-<10 mg/l (piscis) 25.0 mg/l (lem) 32 mg/l (pimephales promelas)

7779-90-0 trizinc bis(orthophosphate)

EC50/48h	28.2 mg/l (daphnia magna)
ErC50/72h	11 mg/l (Desmodesmus subspicatus)
LC50/96h	1.0 mg/l (Oncorhynchus mykiss)

- Remark: Harmful to fish
- **Additional ecological information:**
- General notes: Do not allow product to reach ground water, water course or sewage system.
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Harmful to aquatic organisms

13 Disposal considerations

- Product:
- Recommendation Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· European waste catalogue

20 00 00	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01 00	separately collected fractions (except 15 01)
20 01 27*	paint, inks, adhesives and resins containing dangerous substances
08 00 00	WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS
08 04 00	wastes from MFSU of adhesives and sealants (including waterproofing products)
08 04 09*	waste adhesives and sealants containing organic solvents or other dangerous substances

- Uncleaned packaging:
- Recommendation: Disposal must be made according to official regulations.
Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.
- Recommended cleansing agents: Alcohol
acetone

* **14 Transport information**

· Land transport ADR/RID (cross-border)

- ADR/RID class: -
- Remarks: Without hardener component: no dangerous goods < 450 l (2.2.3.1.5 ADR)

· Maritime transport IMDG:



- IMDG Class: 3
- UN Number:
- Label: 3
- Packaging group: III
- EMS Number: F-E,S-E

(Contd. on page 9)

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Revision: 03.05.2010

PRODUCT NAME: AKEMI PUTTY

(Contd. of page 8)

· Marine pollutant: No
 · Remarks: Without hardener component: no dangerous goods < 30 l

· Air transport ICAO-TI and IATA-DGR:

· ICAO/IATA Class: 3
 · UN/ID Number:
 · Label: 3
 · Packaging group: III
 · Remarks: Without hardener component: 3/III UN 1866 Resin Solution

· UN "Model Regulation":

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15 Regulatory information· Labelling according to EU guidelines:

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

· Code letter and hazard designation of product:

Xn Harmful

· Hazard-determining components of labelling:

styrene

· Risk phrases:

10 Flammable.
 20 Harmful by inhalation.
 36/38 Irritating to eyes and skin.
 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· Safety phrases:

2 Keep out of the reach of children.
 23 Do not breathe fumes.
 24/25 Avoid contact with skin and eyes.
 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 27/28 After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap.
 29/56 Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.
 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
 38 In case of insufficient ventilation, wear suitable respiratory equipment.
 46 If swallowed, seek medical advice immediately and show this container or label.
 51 Use only in well-ventilated areas.

· National regulations:

· Information about limitation of use: Employment restrictions concerning juveniles must be observed.
 Employment restrictions concerning pregnant and lactating women must be observed.

· Waterhazard class:

Water hazard class 2 (Self-assessment): hazardous for water.

(Contd. on page 10)

PRODUCT NAME: AKEMI PUTTY

(Contd. of page 9)

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.

- Relevant R-phrases

10	Flammable.
20	Harmful by inhalation.
36/38	Irritating to eyes and skin.
50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Recommended restriction of use refer to Technical Data Sheet (TDS)
- Department issuing MSDS: Laboratory
- Contact: Dieter Zimmermann
- Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent