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| Safety Data Sheet in accordance with 91/155/EEC | | Page 4 of 4 | |
| Trade Name | AZ 303 Developer | Production No | 11 RXNAF25 v 1 |
| Status | Rev Feb 2007 | Substance Code | 84847 |

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AZ303 DEVELOPER

AZ303 Developer is designed to meet the demanding micro lithographic and processing requirements for printed circuit board production. It is an odourless, aqueous alkaline solution for immersion as well as spray developing processes. Precise manufacture and stringent quality control ensure batch-to-batch reproducibility and product quality.

CAUTION! BOTH SKIN AND EYE PROTECTION SHOULD BE WORN WHEN USING DEVELOPER SOLUTION

DIRECTIONS FOR USE

If using tray:

Immerse exposed PCB in developer for approximately 2 minutes. The tray should be gently rocked so as to provide constant flow of developer solution over the surface of the board. To obtain best results, use the solution at a temperature of 25°C. Temperatures below this are acceptable but the immersion time will need to be increased. Increasing the developing time by up to 50% should not cause problems. Overdeveloping can generally be identified by the photo resist becoming dull or pinholed. Under developing will give poor etching results and copper patches.

If using PCB developing tank:

Follow the instructions supplied with the tank. In general a 4.5 litre mix will saturate after 8 square metres of photo resist has been removed.

STORAGE

If using tray:

Transfer the solution to an unbreakable well-stoppered container. DO NOT store in direct sunlight.

If using PCB developing tank:

The solution may remain in the tank, but the tank heater must be switched OFF and the tank lid must remain firmly in position to prevent loss by evaporation.

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|------------------|------------------------|---|------|-----|
| Marine Transport | IMDG / UN | 8/1719/II | | |
| | EmS | 8-06 | MFAG | 705 |
| | Correct Technical Name | 1719 – Caustic Alkali Liquid, NOS (Sodium/Potassium Hydroxide Solution) | | |
| Air Transport | ICAC / IATA - DGR | 8/1719/II | | |
| | Correct Technical Name | 1719 – Caustic Alkali Liquid, NOS (Sodium/Potassium Hydroxide Solution) | | |
| Despatch By Post | | Not permitted | | |

15. Regulatory Information

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| Labeling in accordance with GefStoffV / EC | The product is classified and labeled in accordance with EC directives and the chemicals hazard information and packaging regulations 1993 | | |
| Hazard Symbols | C Corrosive | | |
| Hazardous components to be indicated on label | Contains: | Potassium Hydroxide | |
| | | Sodium Hydroxide | |
| R Phrases | 36/38 | Irritating to eyes and skin | |
| S Phrases | 2 | Keep out of reach of children | |
| | 26 | In case of contact with eyes, rinse immediately with plenty of water and seek medical advice | |
| | 37/39 | Wear suitable protective clothing, gloves and eye/face protection | |
| Nation regulations | Water Hazard Class (DE) | 2 (self classification) | |
| Other regulations | VbF | Is not subjected to the regulations for flammable liquids | |
| | BG Data Sheet M 004 | Substances causing irritation / corrosive substances | |

16. Other Information

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| This information is based on our present state of knowledge. It should not therefore be construed as a guarantee of specific properties of the products described or their suitability for a particular application | |
| Date of Printing | Feb 07 |

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| 1. Identification of the substance/preparation and company | | |
| Production details | AZ303 Developer | |
| Supplier details | Kelan Circuits Ltd Wetherby Road Boroughbridge YO51 9UY | |
| Information provided by | Technical Manager | |
| Emergency Telephone | 0044 (0)1423 321100 | |
| 2. Composition/Information on Ingredients | | |
| Chemical Characterization | Aqueous Alkaline Preparation | |
| UN Number | 1719 | |
| Hazardous Ingredients | Potassium Hydroxide | |
| | Concentration | <1.5% |
| | CAS Number | 1310-58-3 |
| | Hazard Symbols | Xi |
| | R Phrases | 36/38 |
| | Sodium Hydroxide | |
| | Concentration | <1.5% |
| | CAS Number | 1310-73-2 |
| | Hazard Symbols | C |
| | R Phrases | 35 |
| | Mono-/Di-decylphenpybenzenedisulfonate, Sodium Salt | |
| | Concentration | < 1.5% |
| | Hazard Symbols | Xi |
| | R Phrases | 36/38 |
| 3. Hazards Identification | | |
| Causes severe burns | | |
| 4. First Aid Measures | | |
| General Information | Remove soiled or soaked clothing immediately | |
| After Inhalation | When spray fog inhaled, seek medical aid | |
| After Contact with Skin | In case of contact with skin, wash off immediately with plenty of water. Consult a doctor if skin irritation persists | |
| After Contact with Eyes | Rinse the affected eye with plenty of water, at the same time keep the unaffected eye well protected. Summon a doctor immediately. | |
| After Ingestion | Let plenty of water be drunk in small gulps. Do not induce vomiting. | |
| 5. Fire Fighting Measures | | |
| Suitable extinguishing media | Compatible with all usual extinguishing media. | |
| 6. Accidental Release Measures | | |
| Methods of cleaning up/ taking up | Rinse down with lots of water. If required, add Citric Acid to neutralize pH value | |

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| 7. Handling and Storage | | | | |
| Wear suitable protective clothing | | | | |
| 8. Exposure Controls / Personal Protection | | | | |
| Personal Protection Equipment | Hygiene measures | Observe the usual precautions when handling chemicals | | |
| | Hand protection | Protective gloves – e.g. when filling/emptying processing equipment | | |
| | Eye protection | Safety goggles – e.g. when filling/emptying processing equipment | | |
| 9. Physical and Chemical Properties | | | | |
| Appearance | Form | Liquid | | |
| | Colour | Brownish | | |
| | Odour | Odourless | | |
| Data relevant to safety | Boiling Temperature | Approximately 100°C | | |
| | Flash Point | Not applicable | | |
| | Vapour Pressure | Approximately 23mbar at 20°C | | |
| | Solubility in Water | Miscible | | |
| | PH valuable | Approximately 13 at 20°C | | |
| | Viscosity | Approximately 1 mpas at 20°C | | |
| 10. Stability and Reactivity | | | | |
| Hazardous Reactions | | No hazardous reactions known | | |
| Hazardous decomposition products | | No hazardous decomposition products known | | |
| 11. Toxicological Information | | | | |
| Remarks | Caustic effect on the skin and mucous membranes | | | |
| 12. Ecological Information | | | | |
| Harmful effects to bacteria | According to experience, is not harmful in purification plants after neutralization in quantities <10g/L | | | |
| 13. Disposal Considerations | | | | |
| Product | As ready made preparation, may be released into drains after neutralization as necessary. Flush with plenty of water. If discharge is forbidden by water bye laws, dispose of as waste product. | | | |
| 14. Transport Information | | | | |
| Road Transport | ADR | 8/42 B | | |
| | Product Characteristics | 1719 – Caustic Alkali Liquid, NOS (Sodium/Potassium Hydroxide Solution) | | |
| | Hazard Number | 80 | Substance Number | 1719 |
| | RID | 8/42 B | | |
| | Product characteristics | 1719 – Caustic Alkali Liquid, NOS (Sodium/Potassium Hydroxide Solution) | | |
| | Hazard Number | 80 | Substance Number | 1719 |
| Inland Waterways Transport | ADNR | 8/42 B | | |
| | Product Characteristics | 1719 – Caustic Alkali Liquid, NOS (Sodium/Potassium Hydroxide Solution) | | |