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**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME
(NICNAS)**

FULL PUBLIC REPORT

ALMATEX XPE2587

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**Director
Chemicals Notification and Assessment**

FULL PUBLIC REPORT**ALMATEX XPE2587****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

Panasonic Australia Pty Limited
Austlink Corporate Park,
1 Garigal Road, Belrose NSW 2805

NOTIFICATION CATEGORY

Synthetic Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

Chemical name;
CAS number;
Molecular formula;
Structural formula;
Molecular weight;
Spectral data;
Purity and impurities; and
Import volumes and the use.

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

Variation to the schedule of data requirements is claimed as follows:

Schedule b, 9(b) Explosive Properties

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

The polymer was assessed as CEC/570 in September 2002 and a permit was issued.

NOTIFICATION IN OTHER COUNTRIES

TSCA in 2001

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

XPE2587, ALMATEX XPE2587

PRODUCT NAME

Ultra Magnefine Dry Toner

3. INTRODUCTION AND USE INFORMATION

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	< 10	< 10	< 10	< 10	< 10

USE

Component of toner

4. PROCESS AND RELEASE INFORMATION

4.1. Distribution, Transport and Storage

IDENTITY OF MANUFACTURER/RECIPIENTS

Panasonic Australia Pty Limited. The toner containing the notified polymer will be supplied to various customer outlets around Australia.

TRANSPORTATION AND PACKAGING

The notified polymer will be imported, as a component of photocopier binder toners, in purpose-designed cartridges, which will be packed in cardboard cartons. The cartons will be transported from the dockside to the local notifier's warehouse, where they will be stored until distribution to customer outlets around Australia. Transport and storage workers will load and unload cartons for either storage or distribution to customers.

4.2. Operation Description

The notified polymer will be imported in ready-to-use cartridges, as a component of photocopier toners. Following importation, the product will be stored in the local notifier's warehouse before being transported to various customer outlets. The photocopier service engineers will change the toner cartridge and remove the used cartridge.

5. EXPOSURE INFORMATION

5.1. Occupational exposure

Exposure Details

Transport and Storage

Exposure to the notified polymer is not expected during the importation, warehousing or transportation of the product except in cases where the packaging is accidentally breached.

Customer Service Engineers

Occupational exposure to the notified polymer will primarily concern copier service engineers, as they will be changing the toner cartridge. The toner in the new cartridge remains sealed until the sealing tape is removed just prior to installation. The used cartridge is removed from the machine and replaced with the new cartridge without direct contact with the toner contained in the cartridge. Customer service engineers handling the imported products will be required to wear cotton gloves.

Inhalation and dermal exposure to the toner powder may occur during toner replacement in the event of a container leak or spill. Some exposure may occur as a result of contact with toner particles remaining in the machine and disturbance of toner dust leading to inhalation exposure.

5.2. Public exposure

The notified polymer will not be sold to the general public and is only to be used for commercial purposes. Exposure is only possible in the event of accidents during transport. Exposure will be minimal as the notified polymer is contained within the enclosed toner cartridge. Once printed onto the paper, the notified polymer is fixed and will not be bioavailable.

5.3. Summary of Environmental Exposure and Fate

The toner cartridges will not be opened during transport, use, installation or replacement. Therefore, release of toner containing the notified polymer to the environment is not expected under normal use. However, if leakage does occur, the quantity of toner released will be small and contained and presumably be disposed of to landfill in the normal office garbage along with the empty cartridges. Based on a maximum import volume of 10 tonnes, less than 1000 kg of the notified polymer is expected to remain in empty cartridges. The remaining amount of the notified polymer will be bound to paper and is expected to be recycled, disposed of to landfill or incinerated.

The notified polymer contains linkages that could be expected to undergo hydrolysis under extreme pH conditions. Due to its low water solubility, it should associate with the octanol phase and with the

organic component of soils and sediments.

During the paper recycling process, the paper will be repulped in water, cleansed of contaminants, deinked with alkali, washed, cooked, bleached, screened and then used in the normal process as in other pulp materials. The alkali mixture resulting from the deinking stage is most likely recycled or neutralised and disposed of to a wastewater treatment plants by a licensed waste contractor. It is expected that all of the developer removed from the paper/pulp during deinking will mostly move to sludge due to its low solubility.

The MSDS indicates that the notified polymer is not biodegradable. However, it is not expected to cross biological membranes, due to its low solubility and high molecular weight and as such should not bioaccumulate.

6. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa	Dusty solid
Melting Point (mid point)	141.7°C
Autoignition Temperature	475°C
Flash Point	> 205°C
Density	1.20 g/cm ³
Water Solubility	< 1 mg/L

The water solubility was determined by mixing approximately 40 mg and 400 mg of test substance with 200 mL of distilled water and stirred in a water bath for 30 minutes at 40°C.

The samples were then incubated for 24 hours at 25±2 °C while stirring and left standing for 30 minutes at room temperature before filtering (pore size 0.3 µm). The residues on filters were dried in a vacuum oven at 40°C for 5 hours and cooled in the desiccator for 30 minutes. The weight and the total organic carbon of the filtrates were measured.

The results indicated that the solubility of the test substance was 0.01–0.55 mg/L.

Dissociation Constant	Not determined. There are no groups which can dissociate.
Reactivity	No-reactive
Particle Size	0.3% of particles less than 75 µm and 16.2% of particles less than 250 µm.

7. TOXICOLOGICAL INVESTIGATIONS

No toxicological data were submitted.

8. ENVIRONMENTAL HAZARDS

8.1. Ecotoxicology

No toxicological data were submitted.

8.2. Environmental Hazard Assessment

Without test data, the hazard of the polymer to organisms in the environment is unclear. However nonionic polymers which have molecular weights greater than 1000 are considered to be of low concern (Nabholz *et al.* 1993).

9. RISK ASSESSMENT

Environment

In landfill, the notified polymer on waste paper or sludge is likely to be immobilised through adsorption to organic components of soils and other waste material due to its low water solubility. It is unlikely to move into landfill leachate or groundwater. The long residence time in landfill would allow slow abiotic and biotic processes to degrade the notified polymer. Incineration of waste paper will destroy the notified polymer and will generate water vapour and oxides of carbon and nitrogen.

The notified polymer is not expected to enter the aquatic environment during normal use except via paper recycling. Most of the polymer is likely to be adsorbed on to sludge during wastewater treatment. Any polymer residues entering the aquatic environment are expected to associate with the sediments therefore, not remain in the water compartment and be available for assimilation by aquatic organisms. The literature supports that the notified polymer is expected to have a low acute aquatic toxicity due to its hydrophobic nature and high molecular weight.

No meaningful predicted environmental concentration (PEC), or predicted no-effect concentration (PNEC) can be derived hence, a PEC/PNEC calculation cannot be undertaken. However, based on exposure arguments, and the unlikely hazardous nature of the compound to the aquatic environment, the risk of use of this notified chemical is not expected to be high.

Given the above the overall environmental hazard is expected to be low.

9.2. Human health

7.1.1. Occupational health and safety – exposure assessment

Dermal and inhalation exposure of office workers to the notified polymer will potentially occur when replacing spent cartridges and clearing paper jams from the printer or photocopier.

Dermal and inhalation exposure of maintenance workers to the notified polymer is possible during routine maintenance but is expected to be low due to the low concentration of the notified chemical in the toner. Nevertheless, due to the probable fine nature of the toner, skin, eye and respiratory exposure should be avoided. The national exposure standard for nuisance dusts is 10 mg/m³ TWA (NOHSC, 1995). Australia has no exposure standard for respirable dust, however, the ACGIH TLV of 3 mg/m³ TWA is recommended (ACGIH, 2001). Due to their frequent exposure to toners, maintenance personnel should wear cotton or disposable gloves. However, the design of the cartridges is such that exposure to the notified polymer should be low. The airborne concentration of toner dust in the vicinity of a photocopier is expected to be low.

7.1.2. Public health – exposure assessment

The notified polymer as a photocopier toner will not be available to the public. Members of the public may come into contact with paper printed with the notified polymer.

7.1.3. Human health - effects assessment

The notified polymer meets the PLC criteria and therefore low hazard is expected due to the lack of reactive groups and the inability of the polymer to penetrate biological membranes.

7.1.4. Occupational health and safety – risk characterisation

The OHS risk presented by the notified polymer is expected to be low due to low toxicity and sealed cartridge. The notified polymer may be present in formulations containing hazardous ingredients. If these formulations are classified as hazardous to health in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 1999), workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

9.2.5. Public health – risk characterisation

The notified polymer will not be available to the public. Members of the public may make dermal contact with products containing the notified polymer. However, the risk to public health will be negligible because the notified polymer is bound within a matrix and unlikely to be bioavailable.

10. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

10.1. Hazard classification

Based on the available data the notified polymer is not classified as hazardous under the NOHSC *Approved Criteria for Classifying Hazardous Substances*.

10.2. Environmental risk assessment

The polymer is not considered to pose a risk to the environment based on its reported use pattern.

10.3. Human health risk assessment

10.3.1. Occupational health and safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

10.3.2. Public health

There is Negligible Concern to public health when a photocopier toner containing the notified polymer is used.

11. MATERIAL SAFETY DATA SHEET

11.1. Material Safety Data Sheet

The MSDS of the product provided by the notifier was in accordance with the NOHSC *National Code of Practice for the Preparation of Material Safety Data Sheets* (NOHSC, 1994a). It is published here as a matter of public record. The accuracy of the information on the MSDS remains the responsibility of the applicant.

11.2. Label

The labels for the products containing the notified polymer provided by the notifier were in accordance with the NOHSC *National Code of Practice for the Labelling of Workplace Substances* (NOHSC, 1994b). The accuracy of the information on the label remains the responsibility of the applicant.

12. RECOMMENDATIONS

CONTROL MEASURES

Occupational Health and Safety

- Service personnel and office staff should wear cotton or disposable gloves and ensure adequate ventilation is present when removing spent cartridges containing the notified polymer and during routine maintenance and repairs.

Guidance in selection of personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

- A copy of the MSDS should be easily accessible to employees.

If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances*, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation

Environment

Disposal

- Empty toner cartridges should be disposed of to landfill with office garbage.

Emergency procedures

- Sweep up or vacuum spilled product and carefully transfer into sealed waste container. Sweep slowly to minimise dust generation during cleanup. If a vacuum is used the motor must be rated as dust tight. Residue can be removed with soap and water.

12.1. Secondary notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under Section 64(1) of the Act; if
 - the notified polymer is introduced in a chemical form that does not meet the PLC criteria.

or

- (2) Under Section 64(2) of the Act:
 - if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.

No additional secondary notification conditions are stipulated.

13. BIBLIOGRAPHY

ACGIH (2001); The American Conference of Governmental Industrial Hygienists (ACGIH): Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices 2001; ACGIH Cincinnati, Ohio.

Nabholz JV, Miller P & Zeeman M (1993) Environmental Risk Assessment of New Chemicals Under the Toxic Substances Control Act (TSCA) Section Five. In: Landis WG, Hughes JS & Lewis MA ed Environmental Toxicology and Risk Assessment, ASTM STP 1179, American Society for Testing and Materials, Philadelphia, PA.

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