File No SAPLC/25

December 2005

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

FULL PUBLIC REPORT

Tuftone CPES-A3C

This Self Assessment has been compiled by the applicant and adopted by NICNAS in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS), administered by the Department of Health and Ageing and the Department of the Environment and Heritage has screened this assessment report. The data supporting this assessment will be subject to audit by NICNAS.

For the purposes of subsection 78(1) of the Act, this Full Public Report may be inspected at:

Library
Australian Safety and Compensation Council
25 Constitution Avenue
CANBERRA ACT 2600
AUSTRALIA

To arrange an appointment contact the Librarian on TEL + 61 2 6279 1162 or email ascc.library@dewr.gov.au

This Full Public Report is available for viewing and downloading from the NICNAS website or available on request, free of charge, by contacting NICNAS. For requests and enquiries please contact the NICNAS Administration Coordinator at:

Street Address:	334 - 336 Illawarra Road MARRICKVILLE NSW 2204, AUSTRALIA.
Postal Address:	GPO Box 58, SYDNEY NSW 2001, AUSTRALIA.
TEL:	+ 61 2 8577 8800
FAX	+ 61 2 8577 8888.
Website:	www.nicnas.gov.au

Director
NICNAS

TABLE OF CONTENTS

FULL PUBLIC REPORT

Tuftone CPES-A3C

1. APPLICANT AND NOTIFICATION DETAILS

APPLICANT(S)
Kao (Australia) Marketing Pty. Ltd. (ABN 59 054 708 299)
1-5 Commercial Road
Kingsgrove NSW 2208

NOTIFICATION CATEGORY
Self Assessment: Polymer of Low Concern

EXEMPT INFORMATION (SECTION 75 OF THE ACT)
Data items and details claimed exempt from publication:

Molecular weight, Composition, CAS Number, Molecular formula, Structural formula, Chemical name, Maximum introduction volume of notified chemical.

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)
No variation to the schedule of data requirements is claimed.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)
Polymer of Low Concern, 2005

NOTIFICATION IN OTHER COUNTRIES
USA: P02-975 filed in 2002
China: CAS#440669-94-3 filed in 2003

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)
Tuftone CPES-A3C, Tuftone C-10000

MOLECULAR WEIGHT (MW)

Number Average Molecular Weight (Mn)	>1000
% of Low MW Species < 1000	< 10%
% of Low MW Species < 500	< 10%

3. COMPOSITION

POLYMER CONSTITUENTS

PLC CRITERIA JUSTIFICATION
The notified polymer contains only low concern functional groups.

Criterion	*Criterion met*
Molecular Weight Requirements	Yes
Functional Group Equivalent Weight (FGEW) Requirements	Yes
Low Charge Density	Yes
Approved Elements Only	Yes
Stable Under Normal Conditions of Use	Yes
Not Water Absorbing	Yes
Not a Hazard Substance or Dangerous Good	Yes

The notified polymer meets the PLC criteria.

4. INTRODUCTION AND USE INFORMATION

MODE OF INTRODUCTION OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS
Imported. The polymer will be imported only as a component within toners manufactured in Japan and/or USA.

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

Year	*1*	*2*	*3*	*4*	*5*
Tonnes	<1	<1	<1	<1	<1

USE
Binder resin in toner cartridges

5. PROCESS AND RELEASE INFORMATION

5.1. Operation Description

No reformulation or repackaging of the toner products will occur in Australia. The toner containing <7% notified polymer will be packed in 300 g capacity cartridges or bottles for domestic and office use, and 3 kg capacity toner bottles for industrial use only. The cartridges and bottles are expected to be packed in sturdy cardboard boxes, and normally will be transported and distributed to customers by road.

Office workers and customer service engineers will replace cartridges and toner bottles. Replacement of cartridges involves removal of the old printing cartridge from the printing machine and directly loading the new cartridge. Exchange of toner bottles is required when the printing or copier performance is lost during use. The toner bottles or cartridges are replaced by attaching a specifically designed plastic bag into the copying machine or printer. The used toner is transferred to the bag, the bottle or cartridge refilled with new toner, and the bag is then sealed and removed. For larger machines, it is likely that trained service personnel will carry out toner replenishment. The developer bottle or cartridge is designed so that release of toner is not expected unless the shutter is opened or the seal tape is removed.

6. EXPOSURE INFORMATION

6.1. Summary of Occupational Exposure

Office workers and customer service personnel may be intermittently exposed to the notified polymer when replacing spent cartridges or bottles, cleaning paper jams from the printer or photocopier, and during maintenance of printers or photocopiers. Maintenance workers may potentially come in contact with the notified polymer more often than office workers. Exposure would be principally by skin contamination, however, inhalation exposure could also occur, particularly if spillage occurs. The powder of the notified polymer contains >1.7% of inspirable particle size (<100 µm). Previous estimates have suggested that toner dust levels of 0.02 mg/m^3 exist in the vicinity of copiers or printers. This is well below the NOHSC exposure standard for nuisance dusts of 10 mg/m^3. Employers are responsible for ensuring the NOHSC exposure standards are not exceeded in the workplace.

Customer service personnel often wear cotton or disposable gloves to prevent skin contamination. Workers should also avoid generating dust when handling any toner containing the notified polymer. During transport and storage, workers are unlikely to be exposed to the notified polymer except when packing is accidentally breached.

Residual polymer will also remain on printed paper. However, toners that contain the notified polymer are fused to paper during printing and not available for exposure or dermal uptake.

Due to the expected low exposure, low content of the polymer within the toner (<7%) and enclosed presentation of most toner cartridges and bottles, exposure to the polymer is expected to be low.

6.2. Summary of Public Exposure

The notified polymer will be imported in pre-packed cartridges and bottles. Indirect dermal exposure may occur when replacing spent cartridges, handling printed papers and if a toner cartridge or bottle is damaged or spilled. Based on its use pattern and intermittent exposure, public exposure to the notified polymer will be low.

6.3. Summary of Environmental Exposure

6.3.1. Environmental Release

Negligible amounts of toner containing the binder will be released into the environment annually.

The polymer will be supplied into Australia as a component of toners containing <7% of the notified polymer. Typically, toners incorporating the notified polymer are supplied in toner cartridges or bottles with a capacity of between 300 g and 3,000 g. The cartridges/bottles are used within laser beam printers (LPC) or plain paper copiers (PPC). Use of the toner generally results in <40 mg of toner being deposited per Legal (Foolscap) page. The deposited toner binds to the page. Consequently, print on paper is one potential source of environmental exposure to the polymer.

Disposal of paper waste printed with toner is by normal disposal methods, such as, landfill, incineration or recycling. In landfill the notified polymer, bound within the toner, should remain immobile as it will be bound to the paper. No hazardous products will be produced by the notified polymer as a result of incineration of paper printed with toners incorporating the notified polymer. Recycling results in the production of paper products, in which small amounts of the polymer may be bound or in sludge containing the polymer. The sludge is typically disposed of in industrial waste including landfill where the notified polymer is expected to remain immobile.

Another potential source of environmental exposure is accidental release of the toner, for example, if a cartridge is damaged. Damage to individual cartridges or bottles will result in only small amounts of the toner being released into the environment. Toner containing the notified polymer that is recovered after a spill can be disposed of in a normal waste. Such waste typically is sent to landfill or for incineration.
Spent cartridges may be disposed of in normal waste (which is sent to landfill or for incineration) or recycled.

6.3.2. Environmental Fate

The small amounts of polymer remaining on printed paper will be dispersed as the paper degrades in the environment. Accidental spills need to be cleaned up and managed in accordance with the recommendations for the toner as a whole. Typically, these wastes are disposed of in general waste that is sent to a landfill or for incineration.

Hydrolysis is possible but unlikely under environment conditions, due to the low water solubility of the notified polymer. Any free notified polymer should have low mobility in landfill and is expected to slowly degrade through biotic and abiotic process to form oxides of carbon and hydrogen.

7. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20ºC and 101.3 kPa	Solid, white powder
Melting Point/Glass Transition Temp	100-135°C
Density	1200 kg/m^3 at 20°C
Water Solubility	1 mg/L at 20°C

Particle Size

Particle size (µm)	% in range by weight
>850	16.9
850-500	27.1
355-500	18.0
250-355	15.1
150-250	13.8
75-150	7.4
<75	1.7

Reactivity	Stable under normal environmental conditions
Degradation Products	Does not degrade under normal conditions. Decomposition in fire could result in release of

carbon monoxide and carbon dioxide.

8. HUMAN HEALTH IMPLICATIONS

8.1. Toxicology

No toxicological data were submitted.

8.2. Human Health Hazard Assessment

The notified polymer meets the PLC criteria and can therefore be considered to be of low hazard.

9. ENVIRONMENTAL HAZARDS

9.1. Ecotoxicology

No toxicological data were submitted for the notified polymer.

9.2. Environmental Hazard Assessment

The notified polymer meets the PLC criteria and can therefore considered to be of low hazard. Non-ionic polymers of NAMW >1000 are of low concern. Bioaccumulation of the notified polymer is not expected, as biological membranes are not permeable to very large molecules.

10. RISK ASSESSMENT

10.1. Environment

While environmental exposure is limited during use, the total import volume of the notified polymer will ultimately be disposed of either in landfills or by incineration. The widespread use pattern indicates that landfills throughout Australia would receive the notified polymer bound into the toner matrix with cartridges and on paper products. The used toner would be expected to remain within the container unless breached. On paper, the notified polymer will interact with other components to form a stable polymer matrix and, once dry, is expected to be immobile and pose little risk to the environment.

During recycling processes, waste paper is repulped using a variety of alkaline, dispersing and wetting agents, water emulsifiable organic solvents and bleaches. These agents enhance fibre separation, toner detachment from the fibres, pulp brightness and the whiteness of paper. These aqueous wastes are expected to go into the sewer. Very little of the notified polymer is expected to partition to the supernatant water which is released to the sewer. Sludge generated during the washing process is dried, incinerated or sent to landfill for disposal.

The notified polymer is not likely to present a risk to the environment when it is stored, transported, used, recycled or disposed or in the proper manner.

10.2. Occupational Health and Safety

Occupational exposure to the polymer will be restricted to handling of the sealed cartridges and bottles containing the toners in which the polymer is incorporated. Consequently, the occupational health and safety exposure presented by the notified polymer is expected to be low.

The OHS risk presented by the notified polymer is expected to be low. 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, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

The level of atmospheric nuisance dust should be maintained as low as possible. The NOHSC exposure standard for atmospheric dust is 10 mg/m^3.

10.3. Public Health

Exposure by the public to the polymer will be restricted to handling of toners in which the polymer is incorporated and papers printed using the toner. Most such toners are supplied in sealed cartridges or bottles. The notified polymer is unlikely to be bioavailable when fused during printing. The risk to public health will be low due to intermittent exposure, expected low toxicity and the low concentrations (<7%) of the notified polymer within toners.

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

11.1. Environmental Risk Assessment

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

11.2. Human Health Risk Assessment

11.2.1. Occupational health and safety

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

11.2.2. Public health

There is No Significant Concern to public health when used in the proposed manner.

12. MATERIAL SAFETY DATA SHEET

12.1. Material Safety Data Sheet

The notifier has provided MSDS as part of the notification statement. The accuracy of the information on the MSDS remains the responsibility of the applicant.

13. RECOMMENDATIONS

CONTROL MEASURES

Occupational Health and Safety

- No specific engineering controls, work practices or personal protective equipment are required for the safe use of the notified polymer when present in toners, however, these should be selected on the basis of all ingredients in the formulation.

- If product 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.

- In the interests of occupational health and safety, the following guidelines and precautions should be observed for use of the notified polymer as introduced as a component of toners:
  - It is recommended that service personnel wear cotton or disposable gloves and ensure adequate ventilation is present when replenishing spent ink cartridges and during routine maintenance and repairs of printers and photocopiers.
  - The level of atmospheric nuisance dust should be maintained as low as possible. The NOHSC exposure standard for atmospheric dust is 10 mg/m^3.

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

Disposal

- The notified polymer should be disposed of by methods recommended by the manufacturer for the toner incorporating the polymer. These methods include landfill,

incineration or recycling of cartridges.

Emergency procedures

- The notified polymer will not be imported into Australia other than as a minor component within prepared toners. Spills and accidental releases should be handled in accordance with the directions for the toner. Spills are typically limited, due to small containers, and can be disposed of with normal waste. Disposal should be in accordance with local, state and federal regulations for the disposal of wastes.

13.1. 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 subsection 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 subsection 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.