

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME (NICNAS)

POLYMER OF LOW CONCERN PUBLIC REPORT

MSP-3

This Assessment has been compiled in accordance with the provisions of the *Industrial Chemicals (Notification and Assessment) Act 1989* (Cwlth) (the Act) and Regulations. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by the Australian Government Department of Health and Ageing, and conducts the risk assessment for public health and occupational health and safety. The assessment of environmental risk is conducted by the Australian Government Department of Sustainability, Environment, Water, Population and Communities.

For the purposes of subsection 78(1) of the Act, this Public Report may be inspected at our NICNAS office by appointment only at Level 7, 260 Elizabeth Street, Surry Hills NSW 2010.

This Public Report is also 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:

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**Director
NICNAS**

May 2013

Table of Contents

| | |
|---|---|
| SUMMARY | 2 |
| CONCLUSIONS AND REGULATORY OBLIGATIONS..... | 2 |
| ASSESSMENT DETAILS..... | 3 |
| 1. APPLICANT AND NOTIFICATION DETAILS..... | 3 |
| 2. IDENTITY OF POLYMER | 3 |
| 3. PLC CRITERIA JUSTIFICATION | 3 |
| 4. PHYSICAL AND CHEMICAL PROPERTIES..... | 4 |
| 5. INTRODUCTION AND USE INFORMATION | 4 |
| 6. HUMAN HEALTH RISK ASSESSMENT..... | 4 |
| 7. ENVIRONMENTAL RISK ASSESSMENT | 4 |
| BIBLIOGRAPHY | 6 |

SUMMARY

The following details will be published in the NICNAS *Chemical Gazette*:

| ASSESSMENT REFERENCE | APPLICANT(S) | CHEMICAL OR TRADE NAME | HAZARDOUS SUBSTANCE | INTRODUCTION VOLUME | USE |
|----------------------|--------------------------|------------------------|---------------------|-----------------------|---------------------------------|
| PLC/1123 | Cintox Australia Pty Ltd | MSP-3 | No | ≤ 10 tonnes per annum | Component of inkjet printer ink |

CONCLUSIONS AND REGULATORY OBLIGATIONS

Human Health Risk Assessment

Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the health of workers and the public.

Environmental Risk Assessment

Based on the assumed low hazard and the assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

Health and Safety Recommendations

- No specific engineering controls, work practices or personal protective equipment are required for the safe use of the notified polymer itself. However, these should be selected on the basis of all ingredients in the formulation.
- Service personnel should wear disposable gloves and ensure adequate ventilation is present when removing spent printer cartridges containing the notified polymer and during routine maintenance and repairs.
- A copy of the (M)SDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the *Globally Harmonised System for the Classification and Labelling of Chemicals (GHS)*, as adopted for industrial chemicals in Australia, workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation should be in operation.

Disposal

- The notified polymer should be disposed to landfill.

Emergency Procedures

- Spills and/or accidental release of the notified polymer should be handled by physical containment, collection and subsequent safe disposal.

Secondary Notification

This risk assessment is based on the information available at the time of notification. The Director may call for the reassessment of the polymer under secondary notification provisions based on changes in certain circumstances. Under Section 64 of the *Industrial Chemicals (Notification and Assessment) Act (1989)* the notifier, as well as any other importer or manufacturer of the notified polymer, have post-assessment regulatory obligations to notify NICNAS when any of these circumstances change. These obligations apply even when the notified polymer is listed on the Australian Inventory of Chemical Substances (AICS).

Therefore, the Director of NICNAS 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
- the function or use of the notified polymer has changed from a component of inkjet printer ink, or is likely to change significantly;
 - the amount of notified polymer being introduced has increased, or is likely to increase, significantly;
 - the notified polymer has begun to be manufactured in Australia;
 - additional information has become available to the person as to an adverse effect of the notified polymer on occupational health and safety, public health, or the environment.

The Director will then decide whether a reassessment (i.e. a secondary notification and assessment) is required.

(Material) Safety Data Sheet

The (M)SDS of a product containing the notified polymer was provided by the applicant. The accuracy of the information on the (M)SDS remains the responsibility of the applicant.

ASSESSMENT DETAILS

1. APPLICANT AND NOTIFICATION DETAILS

Applicants

Cintox Australia Pty Ltd (ABN: 63 122 874 613)
Suite 1, Level 2, 38-40 George St
Paramatta NSW 2150

Exempt Information (Section 75 of the Act)

Data items and details claimed exempt from publication: chemical name, other names, CAS number, molecular and structural formulae, molecular weight, reactive functional groups, polymer constituents, residual monomers/impurities and import volume.

2. IDENTITY OF POLYMER

Marketing Name(s)

MSP-3

Molecular Weight

Number Average Molecular Weight (Mn) is > 1,000 Da

3. PLC CRITERIA JUSTIFICATION

| <i>Criterion</i> | <i>Criterion met</i> |
|--|----------------------|
| 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. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|-------------------------------------|--|
| Appearance at 20 °C and 101.3 kPa | liquid |
| Melting Point/Glass Transition Temp | Not determined. Imported in solution |
| Density | ~ 1000 kg/m ³ at 20 °C |
| Water Solubility | 0.022 g/L at 25 °C. The solutions (600 mg of test substance in 300 ml of water) were shaken at 25 °C for 24 hours and filtered. The filtrates were weighed and the water solubility was determined gravimetrically (SCAS, 2011). |
| Dissociation Constant | Not determined. The notified polymer contains potential cationic functionalities with typical pKa ~10. It is expected to be ionised in the environmental pH range (4-9). |
| Reactivity | Stable under normal environmental conditions |
| Degradation Products | None under normal conditions of use |

5. INTRODUCTION AND USE INFORMATION

Maximum Introduction Volume of Notified Chemical (100%) Over Next 5 Years

| Year | 1 | 2 | 3 | 4 | 5 |
|--------|------|------|------|------|------|
| Tonnes | < 10 | < 10 | < 10 | < 10 | < 10 |

Use

The notified polymer will not be manufactured or reformulated in Australia. The notified polymer will be imported as a component of finished printing inks. The printing inks (containing < 5% notified polymer) are fast drying hydrocarbon-based inks and will be used in commercial/large office inkjet printers to print onto paper.

6. HUMAN HEALTH RISK ASSESSMENT

No toxicological data were submitted. The notified polymer meets the PLC criteria and is therefore assumed to be of low hazard. The risk of the notified polymer to occupational and public health is not considered to be unreasonable given the assumed low hazard and the assessed use pattern.

7. ENVIRONMENTAL RISK ASSESSMENT

No ecotoxicological data were submitted. The notified polymer contains cationic functional groups, however, the calculated cationic group equivalent weight was greater than 5000. Polymers with low cationic charge densities are generally of low concern to the aquatic environment.

The notified polymer will be imported as a component of finished printing inks. The printing inks will be used in commercial/large office inkjet printers to print onto paper. The notified polymer may be released to the environment as a result of ink spills (0.2% of the total import volume), cleaning of equipment and disposal of residual ink in empty containers (2%). These wastes are expected to be disposed of to landfill. Most of the notified polymer is expected to be incorporated within an inert ink matrix adhering to the surface of printed paper. It is assumed that 50% of the printed paper will end up in landfill and the rest will undergo paper recycling processes. During recycling processes, waste paper is repulped using a variety of chemical agents, which, amongst other things, enhance detachment of inks from the fibres. Due to its sorptive nature, very little of the notified polymer is

expected to partition to the supernatant water which is released to the sewer. Based on its high molecular weight, the notified polymer is not expected to cross biological membranes and is therefore not likely to bioaccumulate. Most of the notified polymer will reach landfill as a result of disposal of used paper or sludge waste from paper recycling. In landfill the notified polymer will be slowly degraded, eventually forming water and oxides of carbon and nitrogen.

Therefore, based on its assumed low hazard and assessed use pattern, the notified polymer is not considered to pose an unreasonable risk to the environment.

BIBLIOGRAPHY

SCAS (2011) Determination of the water solubility of MSP-3 (Study No. 8224022-00, May 2011), Ehime, Japan, Sumika Chemical Analysis Service Ltd (unpublished report submitted by the notifier)