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**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION
AND ASSESSMENT SCHEME**

FULL PUBLIC REPORT

CIN 10083291

This Assessment has been compiled in accordance with the provisions of *the Industrial Chemicals (Notification and Assessment) Act* 1989 (the Act), and Regulations. This legislation is an Act of the Commonwealth of Australia. The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) is administered by Worksafe Australia which also conducts the occupational health & safety assessment. The assessment of environmental hazard is conducted by the Department of the Environment, Sport, and Territories and the assessment of public health is conducted by the Department of Health and Family Services.

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Director
Chemicals Notification and Assessment

FULL PUBLIC REPORT**CIN 10083291****1. APPLICANT**

Kodak Australasia Pty Ltd of 173 Elizabeth St Coburg Victoria 3058 has submitted a notification statement accompanying their application for assessment of the synthetic polymer of low concern CIN 10083291.

2. IDENTITY OF THE CHEMICAL

Based on the nature of the polymer and the data provided, CIN 10083291 is not considered to be hazardous. Therefore, the chemical identity and exact use have been exempted from publication in the full public report.

Other Name: CIN 10083291

Number-Average Molecular Weight (NAMW): 41 450

Maximum Percentage of Low Molecular Weight Species (Polymers and Oligomers)
(Molecular Weight < 1 000): 1%
(Molecular Weight < 500): 0%

Means of Identification (List of Spectral Data Available): infrared spectrum

3. PHYSICAL AND CHEMICAL PROPERTIES

The notified polymer will be imported into Australia as a 25-30% latex solution containing water at 70-75% and minor constituents at < 4%.

Appearance at 20°C and 101.3 kPa: white aqueous latex solution

Boiling Point: > 100°C

Density: 1 000 - 1 100 kg/m³ (polymer itself)

Water Solubility: < 1 mg/L (see comments below)

Comments on Physico-Chemical Properties

The polymer is manufactured as an emulsion polymer. The notifier claims there is no method of isolating the polymer from the emulsion without incorporating traces of water soluble surfactants and salts, making it difficult to measure water solubility. It is agreed that water solubility would be low given the lack of functionality which would confer this property.

Other information on physico-chemical properties is acceptable for a polymer of low concern. The polymer does contain functionalities which could undergo hydrolysis, but hydrolysis at the environmental pH range would be precluded by low solubility.

4. PURITY OF THE CHEMICAL

Maximum Weight-Percentage of Residual Monomers: 0.04%

5. USE, VOLUME AND FORMULATION

The notified polymer is to be used in the manufacture of photographic film/paper and is to be imported in an aqueous latex solution at a concentration of 25-30%. The polymer is to be imported at a rate of 90 tonnes per year for the first five years.

6. OCCUPATIONAL EXPOSURE

The notified polymer as a component of a latex solution, will be imported in 200 L polythene drums. The solution will be transferred from the drum to a mix tank by a metering pump which measures in the required weight. Other components are added together to form a dispersion. The dispersion is further processed in a closed system and then pumped through a barrel heat exchanger which cools it to a point at which the mixture sets to a gel. This gel is then broken into chunks by a device at the end of the heat exchanger. The gel is stored until required for the next stage of the process. During this stage the gel is added to melt tanks where other components are added. The resulting dispersion is then pumped to closely controlled automated processing equipment where the polymer is incorporated into articles.

Exposure to drips, spills and splashes is possible during transfer of latex solution to mix tanks and transferring the dispersion from melt tanks to the processing equipment while connecting and disconnecting lines. Exposure to the solid chunks is possible when transferring them from storage to the melt tanks.

7. PUBLIC EXPOSURE

No significant public exposure to the notified polymer is expected during distribution,

use or disposal.

There is low potential for public exposure to the notified polymer when used in photographic paper or film. The properties of the polymer suggest that should exposure occur absorption is unlikely.

8. ENVIRONMENTAL EXPOSURE

. Release

The notifier indicates around 5% (4500 kg of annual import volume) of the polymer could be released from the mix tank through cleaning operations, to the municipal sewer. This equates to 18 kg per day, if processing is carried out on 250 days per year.

Polymer trapped in the automated processing equipment (after pumping from the melt tank) is trapped by the Silver Recovery Department as “filter cake”. This is sent back to the USA, where any polymer would be destroyed through smelting to regenerate silver.

The notifier estimates that less than 1% of the waste will be sent to secure landfill.

. Fate

The expected low solubility of the notified polymer indicates some would be associated with sludge in the sewerage treatment process. The remainder would be expected to remain in the water column within the aqueous emulsion in which it is produced.

In landfill the polymer would be expected to be immobile and not subject to breakdown by hydrolysis or microbial action.

In the silver recovery process the polymer would be incinerated.

Once incorporated in articles, the notified polymer would be bound and immobile. Any trimmed photographic film or paper containing the polymer would be landfilled, and the end use film or paper would ultimately be landfilled, but in a highly diffuse manner.

Bioaccumulation of the polymer is unlikely due to the high molecular weight and of the polymer.

9. ASSESSMENT OF ENVIRONMENTAL EFFECTS

No ecotoxicological data were provided which is acceptable for polymers of low concern with a NAMW greater than 1000 according to the Act.

10. ASSESSMENT OF ENVIRONMENTAL HAZARD

The Kodak plant in Melbourne where all the notified polymer will be used, has a flow

of approximately 400,000 L (0.4 ML) per day. This is released to the Werribee treatment plant, which has a daily output of around 500 ML.

Five per cent release of the notified polymer to sewer on 250 days of the year, equates to 18 kg per day. After dilution in the Kodak plant, and further dilution in the sewage treatment plant, the concentration of the notified product is around 36 µg/L prior to release in receiving waters, where further dilution would occur.

This indicates a low environmental hazard.

11. ASSESSMENT OF OCCUPATIONAL AND PUBLIC HEALTH AND SAFETY EFFECTS

CIN 10083291 has been notified as a synthetic polymer of low concern under section 23 for the purposes of section 24A of the *Industrial Chemicals (Notification and Assessment) Act*, 1989. The polymer meets the criteria for a synthetic polymer of low concern specified in regulation 4A of the Act and can be considered of low hazard to human health.

Exposure to the notified polymer is expected to be limited to spills, drips and splashes during pumping of the latex solution to a mix tank for preparation of a solid dispersion which is stored chilled until required. When required, the solid dispersion is added to melt tanks and some exposure is possible during this operation. Finally, exposure to spills, drips and splashes is possible when transferring the melted dispersion to automated processing equipment for incorporation into articles. Under normal conditions of use, exposure to the notified polymer during these operations is expected to be low.

The risk of adverse health effects to workers or the public occurring as a result of transport, storage, use or disposal of the notified polymer is expected to be low.

12. RECOMMENDATIONS

To minimise occupational exposure to notified polymer the following guidelines and precautions should be observed:

- Spillage of the notified chemical should be avoided, spillages should be cleaned up promptly which should then be put into containers for disposal or recycling;
- Good personal hygiene should be practised to minimise the potential for ingestion;
- A copy of the relevant Material Safety Data Sheet (MSDS) should be easily accessible to employees.

13. MATERIAL SAFETY DATA SHEET

The MSDS for the polymer solution to be imported was provided in accordance with the *National Code of Practice for the Preparation of Material Safety Data Sheets* (1).

This MSDS was provided by the notifier as part of the notification statement. It is reproduced here as a matter of public record. The accuracy of this information remains the responsibility of the notifier.

14. REQUIREMENTS FOR SECONDARY NOTIFICATION

Under the Act secondary notification of the notified chemical shall be required if any of the circumstances stipulated under subsection 64(2) of the Act arise. No other specific conditions are prescribed.

15. REFERENCES

1. National Occupational Health and Safety Commission 1994, *National Code of Practice for the Preparation of Material Safety Data Sheets* [NOHSC:2011(1994)], AGPS, Canberra.