File No: NA/569

September 1997

NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME

FULL PUBLIC REPORT

CIN 10096270

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 and the assessment of public health is conducted by the Department of Health and Family Services.

For the purposes of subsection 78(1) of the Act, copies of this full public report may be inspected by the public at the Library, Worksafe Australia, 92-94 Parramatta Road, Camperdown NSW 2050, between the following hours:

Monday - Wednesday	8.30 am - 5.00 pm
Thursday	8.30 am - 8.00 pm
Friday	8.30 am - 5.00 pm

Copies of this full public report may also be requested, free of charge, by contacting the Administration Coordinator on the fax number below.

For enquiries please contact the Administration Coordinator at:

Street Address: 92 Parramatta Rd Camperdown, NSW 2050, AUSTRALIA
Postal Address: GPO Box 58, Sydney 2001, AUSTRALIA
Telephone: (61) (02) 9577-9466 FAX (61) (02) 9577-9465

Director
Chemicals Notification and Assessment

FULL PUBLIC REPORT

CIN 10096270

1. APPLICANT

Kodak (Australasia) Pty Ltd of 173 Elizabeth Street COBURG VIC 3058 has submitted a standard/limited notification statement in support of their application for an assessment certificate for CIN 10096270.

2. IDENTITY OF THE CHEMICAL

CIN 10096270 is not considered to be hazardous based on the nature of the chemical and the data provided. Therefore the chemical name, CAS number, molecular and structural formulae and spectral data have been exempted from publication in the Full Public Report and the Summary Report.

2. IDENTITY OF THE CHEMICAL

Trade Name:	CIN 10096270
Molecular Weight:	496.7
Method of Detection and Determination:	Infrared (IR), ultraviolet visible (UV/vis) and nuclear magnetic resonance (NMR) traces were provided

3. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa:	off white solid
Melting Point:	42.5 - 45.0°C $\pm$ 5°C
Specific Gravity:	1.1929
Vapour Pressure:	< 2.3×10^{-4} Pa at 25°C

Water Solubility:	< 0.1 $mg.L^{-1}$ at 25°C (column elution method) < 0.16 $\mu g.L^{-1}$ (HPLC method)
Partition Co-efficient (n-octanol/water):	log K_{ow} > 7.8 at 26°C
Hydrolysis as a Function of pH:	$T_{1/2}$ at pH 4.0 = 5.5 hours $T_{1/2}$ at pH 7.0 = 5.3 hours $T_{1/2}$ at pH 9.0 = 1 435 hours
Adsorption/Desorption:	not determined
Dissociation Constant:	not determined
Flash Point:	not determined
Flammability Limits:	not highly flammable
Autoignition Temperature:	504°C
Explosive Properties:	non-explosive
Reactivity/Stability:	not determined but considered not to be oxidising based on structure activity relationships

Comments on Physico-Chemical Properties

Tests were performed according to EEC/OECD test guidelines {Organisation for Economic Co-operation and Development, 1995-1996 #15} at facilities complying with OECD Principles of Good Laboratory Practice.

The hydrolysis studies on the notified chemical were undertaken in 5% N,N-dimethylformamide solutions at elevated temperatures. The estimated half-lives at 25°C indicate that the chemical is relatively susceptible to hydrolytic decomposition, at near neutral pH or below. It is unclear whether it is the ester or sulfonamide functionality or both which are hydrolysed.

Based on the high value of the partition coefficient the notified chemical is expected to adsorb strongly to soil/sediments.

Determination of a dissociation constant was attempted in an aqueous environment using potentiometric titration using both 0.1 N HCl and 0.1 N NaOH. No end points were determined and the substance appeared to remain insoluble throughout titrations. Attempts to dissolve the notified chemical in aqueous/organic media (mixtures tried included 5% methanol, 5% acetonitrile, 5% isopropyl alcohol, 5% tetrahydrofuran and 5% N,N-dimethylformamide). The notified chemical contains no groups which would readily gain or lose a proton.

4. PURITY OF THE CHEMICAL

Degree of Purity: 98.5%

Toxic or Hazardous Impurities: none

Non-hazardous Impurities (> 1% by weight):

Name	*CAS Number*	*% Weight (max.)*
starting material	not allocated	1.14

Additives/Adjuvants: none

5. USE, VOLUME AND FORMULATION

The notified chemical is to be used in the manufacture of photographic film or paper.

The notified chemical will not be manufactured in Australia. It will be imported into Australia in plastic bags containing 10 kg of the pure notified chemical. The bags will be contained in cardboard boxes. Import volumes for the notified chemical are expected to be approximately 35 tonnes per annum over the first five years.

6. OCCUPATIONAL EXPOSURE

Workers who will handle the notified chemical include transport, storage and production workers. The notified chemical has a particle size greater than 1 mm and vapour pressure less than 2.3×10^{-4} Pa at 25°C, thus the exposure via inhalation route will be negligible. Dermal exposure would be the main route of occupational exposure in production workers.

The notified chemical will be imported in the form of 10 kg modules packed in tied plastic bags within cardboard boxes. The transport and storage workers are unlikely to be exposed to the notified chemical except in the event of an accident.

Production workers at mix tank site and melt tank site will handle the notified chemical. Workers at the mix tank site may be exposed to the notified chemical during weighing, addition and packaging. Dermal contact would be the main route of exposure for workers at the mix tank site. Eye exposure is possible but is unlikely under normal conditions. At the melt tank site, the mixture produced at the mix tank site will be added to melt tanks, and incorporated into articles (photographic film and paper). The only occupational exposure for workers at the melt tank site would be the exposure during the addition of the mixture into the melt tanks, as the rest process will be operated by automated processing equipment.

7. PUBLIC EXPOSURE

Following import, the notified chemical will be only available to industrial processors at one site in Australia, and not to the general public.

Once it is incorporated into finished products, the new chemical will be under overcoat layers and no significant exposure to the general public is expected.

In the event of an accident, the spill will be contained and the material will be collected and placed into suitable containers. It is expected that end-products containing photographic film or paper treated with the notified chemical would mostly be landfilled or incinerated when the goods are disposed of.

8. ENVIRONMENTAL EXPOSURE

Release

Release of the notified chemical during the film/paper manufacturing process described above is limited to the one site in Coburg Victoria where that process occurs. Residues in various wastes from that site could end up in sewage effluent, in secured landfill sites, or in material subsequently processed for silver recovery. Once the chemical becomes part of the article, the layers containing the notified chemical in low concentrations are securely bound to the film or paper base and overcoated by protective layers. These surface layers will prevent direct exposure to the environment of the notified chemical. Additionally, the chemical is expected to remain immobile during the processing of the film or paper.

The notifier estimates that approximately 3.5% of the mixture from the mix tank could be released to the municipal sewer. This would result in a maximum of 21 kg per day release of the chemical. The notified chemical released as an aqueous dispersion to the municipal sewer. Total releases will exceed 1 tonne per annum.

Any of the chemical released from the automated processing equipment (up to 5% from the melt tank and processing equipment) is trapped as "filter cake" for later silver recovery. Any chemical trapped in the filter cake would be expected to be destroyed when the filter cake is smelted to regenerate silver, which is performed in the USA.

Additionally, the notifier estimates that up to 1% waste may be generated in the manufacture of film and paper containing the chemical, containing less than 10% of CIN 10096270, may be sent to a secured landfill.

Fate

Waste from the production of a batch of the aqueous solution is expected to be released to sewer, with secondary to tertiary sewage treatment by the Werribee treatment works. Level 1 Mackay calculations for CIN 10096270 indicate that at equilibrium approximately 50%, 47%, 0% and 3% will be partitioned to soil, sediment, water and air, respectively. As the values (vapour pressure = 2.3×10^{-4} Pa, water solubility = 0.16 $\mu g.L^{-1}$ and log K_{OW} = 7.8) used in the Mackay modelling were limit values the partitioning to air is likely to be overestimated. Hence, CIN 10096270 should strongly partition to the soils and sediment of Werribee treatment works.

Waste trapped in filter cake is processed in the USA. Empty plastic bags used to ship the chemical, containing a traces of it, will be confined to secure landfill. The cardboard boxes will be recycled. Used or waste photographic film and paper would be incinerated, or buried in landfill.

The substance was examined for biodegradation potential using EEC Directive 92/69, Part C.4-C (Modified Sturm Test), and OECD Test Guideline 301B (substance added directly to test carboys due to sparing solubility). Over the 28 day test, biodegradation reached 6% in the two replicates, indicating it was not readily biodegradable under the conditions of the test. It was also found that the substance was not inhibitory to microorganisms under these conditions.

The extremely high partition coefficient, very low water solubility of the notified chemical would indicate little potential for bioaccumulation {Connell, 1989 #3}. Any potential for bioaccumulation would be moderated by limited exposure to natural waters.

9. EVALUATION OF TOXICOLOGICAL DATA

9.1 Acute Toxicity

Summary of the acute toxicity of CIN 10096270

Test	*Species*	*Outcome*	*Reference*
acute oral toxicity	rat	2 000 $mg.kg^{-1}$	{Shepard, 1995 #119}
acute dermal toxicity	rat	2 000 $mg.kg^{-1}$	{Shepard, 1995 #119}
skin irritation	rabbit	non-irritant	{Sakal L, 1995 #121}
eye irritation	rabbit	slight irritant	{Shepard, 1995 #122}
skin sensitisation	guinea pig	non-sensitiser	{Shepard, 1995 #123}

9.1.1 Oral Toxicity {Shepard, 1995 #119}

Species/strain:	rat/CD(SD)BR VAF Plus
Number/sex of animals:	5/sex
Observation period:	14 days
Method of administration:	oral, gavage
Clinical observations:	3 males and 1 female had diarrhoea on the day of dosing; no other abnormal signs were noted at any other time during the study
Mortality:	nil
Morphological findings:	none
Test method:	similar to OECD Test Guidelines {Organisation for Economic Co-operation and Development, 1995-1996 #15}
LD_{50}:	> 2 000 $mg.kg^{-1}$
Result:	the notified chemical was of low oral toxicity in a limit study in rats

9.1.2 Dermal Toxicity {Shepard, 1995 #119}

Species/strain:	rat/CD(SD)BR VAF Plus
Number/sex of animals:	5/sex
Observation period:	14 days
Method of administration:	neat test substance administered as a paste moistened with water under an occlusive wrap for 24 hours
Clinical observations:	no abnormalities detected
Mortality:	nil
Morphological findings:	none
Test method:	similar to OECD Test Guidelines {Organisation for Economic Co-operation

	and Development, 1995-1996 #15}
LD_{50}:	> 2 000 $mg.kg^{-1}$
Result:	the notified chemical was of low dermal toxicity in a limit study in rats

9.1.3 Inhalation Toxicity - not conducted

9.1.4 Skin Irritation {Sakal L, 1995 #121}

Species/strain:	rabbit Hra:(NZW) SPF
Number/sex of animals:	3/sex not determined
Observation period:	3 days
Method of administration:	0.5 g of test material applied as a solid moistened with water was applied to the shaved site and held in place by an occlusive wrap for 4 hours
Test method:	similar to OECD Test Guidelines {Organisation for Economic Co-operation and Development, 1995-1996 #15}
Result:	the notified chemical was a non-irritant to rabbit skin

9.1.5 Eye Irritation {Shepard, 1995 #122}

Species/strain:	rabbit Hra:(NZW) SPF
Number/sex of animals:	6/not determined
Observation period:	3 days
Method of administration:	0.1 g of test material was instilled into the conjunctival sac of one eye of each animal; in three animals the eyes were irrigated
Unirrigated eyes:	signs of slight redness; slight oedema or moderate redness of the conjunctivae and nictitating membrane were seen all rabbits one hour after dosing; these signs had regressed in one animal by the 24 hour reading with slight redness of the

	conjunctivae and nictitating membrane observed in the remaining animals up to the 48 hour reading; no corneal or iridial effects were observed in any of the rabbits in this group
Irrigated eyes:	immediate irrigation had a palliative effect; signs of irritation were limited to slight redness of the conjunctivae and nictitating membrane one hour after dosing; these signs had regressed by the 24 hour examination
Test method:	similar to OECD Test Guidelines {Organisation for Economic Co-operation and Development, 1995-1996 #15}
Result:	the notified chemical was a slight irritant to the rabbit eye

9.1.6 Skin Sensitisation {Shepard, 1995 #123}

Species/strain:	guinea pig/Cri:(AH)BR VF/Plus
Number of animals:	20 test and 10 control/males
Induction procedure:	Day 1: 3 pairs of intradermal injections: - 0.1mL Freund's complete adjuvant (FCA):isotonic saline (1:1(v/v)) - 0.1mL of 5% concentration of test material in isotonic saline - 0.1mL of 5% concentration of test material in corn oil Day 7: test area treated with 0.5mL per injection site of 10% (w/w) sodium lauryl sulfate (10%w/w) in vaseline Day 8: occluded application of 25% concentration of test material for 48 hours
Challenge procedure:	Day 21: occluded application of 25% concentration of test material on the left flank and a second patch of 100% concentration of petrolatum on the right flank for 24 hours

Challenge outcome:

	Test animals		Control animals	
Challenge concentration	***24 hours****	***48 hours****	***24 hours***	***48 hours***
25%	0/20	0/20	0/10	0/10

* time after patch removal
** number of animals exhibiting positive response

Test method: OECD test guidelines {Organisation for Economic Co-operation and Development, 1995-1996 #15}

Result: the notified chemical was not a skin sensitiser

9.2 Repeated Dose Toxicity {Faber, 1997 #124}

Species/strain: rat/Sprague-Dawley(CD®(SD)BR/VAF Plus™)

Number/sex of animals: 5/sex

Method of administration: gavage

Dose/Study duration:: 0, 100, 300 or 1000 $mg.kg^{-1}$ daily for 29 days

Control: vehicle only (corn oil)

low dose: 100 $mg.kg^{-1}$

mid dose: 300 $mg.kg^{-1}$

high dose: 1 000 $mg.kg^{-1}$

Clinical observations: no spontaneous deaths were observed; 1 female high-dose was euthanatised due to signs in the apparent gavage error

no clinical signs of toxicity were observed; other observations include: crusting/scaling of the skin of the neck (1 low-dose male), alopecia of the skin of the arm (1 mid-dose male), and sialorrhea (1 high-dose male); crusting/ scaling of the skin of the face, brown discolouration of the perioral hair, diarrhoea,

	reduced faeces, hair of inguinal area wet by urine or stained by dry urine, porphyrin tears and rales were observed in 1 high-dose female as clinical signs secondary to oesophageal damage induced by dosing trauma and which were not considered to be treatment related no significant differences in body weight or mean feed consumption were observed
Clinical chemistry/Haematology	significantly lower mean sorbitol dehydrogenase activities were observed in mid-dose male group however, this was not considered exposure-related since the enzyme activity typically increases in response to organ toxicity significantly higher mean aspartate aminotrasferase and mean alanine aminotransferase activities were observed in high-dose male group significantly higher mean alanine aminotransferase activity, sorbitol dehydrogenase activity, albumin concentration, and albumin/globulin ratio were observed in high-dose female group no differences in haematology parameters of any of the female groups were observed significantly higher mean white blood cell count was observed in high-dose male group however, this was not considered exposure-related since the white blood cell count observed was within the normal range for this parameter in the testing laboratory no significant abnormalities in red blood cell morphology were observed in all groups no changes in haematology were considered
Organ Weights:	significantly higher mean liver weights and mean relative (to body weight) liver weights were observed in mid- and high-dose female groups; significantly higher mean relative (to body weight) liver weights were observed in

	high-dose male group significantly lower mean testes weights were observed in low-dose male group however, this was not considered toxicologically significant since similar findings were not observed in mid-dose groups and in high-dose groups the testes were microscopically normal
Histopathology:	treatment-related microscopic changes in hepatocytes were observed including: minimal to minor hypertrophy in 2/5 males and minor hypertrophy in 3/5 females, and moderate eosinophilic cytoplasmic change in 3/5 males and 4/5 females from high-dose groups minimal hypertrophy in 1/5 male and moderate eosinophilic cytoplasmic change in 5/5 males and 3/5 females in mid-dose groups no treatment-related lesions were observed a small white nodule in oesophageal wall which was considered secondary to gavage error was observed in 1 female high-dose rat
Test method:	OECD test guidelines {Organisation for Economic Co-operation and Development, 1995-1996 #15}
Result:	increased liver weights and changes in microscopic hepatocyte appearance suggest that the liver may be a target organ at higher doses

9.3 Genotoxicity

9.3.1 *Salmonella typhimurium*/*Escherichia coli* Reverse Mutation Assay {Lawlor, 1995 #125}

Strains:	*S typhimurium* TA98, TA100, TA1535, TA1537 and *E coli* WP2*uvr*A(pKM101)
Concentration range:	5 000, 2 500, 1 000, 500, 250, 100, 50, 25 μg per plate

Test method:	OECD test guideline{Organisation for Economic Co-operation and Development, 1995-1996 #15}
Result:	the notified chemical did not cause a positive increase in the number of revertants per plate of any of the bacterial strains tested in the presence and absence of microsomal enzyme from induced-rat liver S9.

9.3.2 Chromosome Aberration Assay in Chinese Hamster Ovary Cells (CHO){Murli, 1995 #126}

Species/strain:	CHO/WBL
Dose range:	0.625 - 49.8 $\mu g.ml^{-1}$ in 20 hours 2.49 - 29.9 $\mu g.ml^{-1}$ in 44 hours
Test method:	OECD test guideline{Organisation for Economic Co-operation and Development, 1995-1996 #15}
Result:	the notified chemical did not induce chromosomal aberrations and polyploidy in CHO cells in the presence or absence of metabolic activation

9.4 Overall Assessment of Toxicological Data

CIN 10096270 shows low acute oral and dermal toxicity in rats with LD_{50} values of greater than 2 000 $mg.kg^{-1}$ for both administration routes. CIN 10096270 is not irritant to rabbit skin however, it caused slight irritation in the rabbit eye. These responses noted were below the threshold necessary for classification as hazardous according to the Approved Criteria for Classifying Hazardous Substances {National Occupational Health and Safety Commission, 1994 #9}. CIN 10096270 was not considered to be a dermal sensitiser in guinea pigs.

In a repeat-dose oral toxicity study, increased liver weights and changes in microscopic hepatocyte appearance suggest that the liver may be a target organ at higher doses.

No mutagenicity was observed in *Salmonella typhimirium* and *Escherichia coli* strains with or without metabolic activation. Similarly, the notified

chemical did not induce chromosomal aberrations and polyploidy in CHO cells *in vitro* in the presence and absence of metabolic activation.

10. ASSESSMENT OF ENVIRONMENTAL EFFECTS

The following ecotoxicity studies have been supplied by the notifier. The tests were carried out to OECD Test Methods {Organisation for Economic Co-operation and Development, 1995-1996 #15}.

Test	*Species*	*Results*
Acute Toxicity[a] (96 h, static)	Fathead minnow *Brachydanio rerio*	NOEC > 2.50 $mg.L^{-1}$
Acute Toxicity[a] (48 h, static)	*Daphnia magna*	0.059 $mg.L^{-1}$ Û EC50 Û 0.084 $mg.L^{-1}$ NOEC = 0.017 $mg.L^{-1}$ EC_{50} = 0.128 $mg.L^{-1}$ [c]
Chronic Toxicity[b] (21 d, flow-through)	*Daphnia magna*	Reproduction LOEC = 29 $\mu g.L^{-1}$ EC_{50} = 58 $\mu g.L^{-1}$ [c] Survival LOEC = 110 $\mu g.L^{-1}$ NOEC = 49 $\mu g.L^{-1}$ EC50 = 130 $\mu g.L^{-1}$ EC50 = 136 $\mu g.L^{-1}$[c]
Growth Inhibition[a] (72 h)	Algae *Scenedesmus capricornutum*	NOEC = 1.87 $mg.L^{-1}$

[a]Test material was added as a stock solution in N,N-dimethylformamide.
[b]Test material was added as a stock solution in acetone.
[c]Calculated by Environment Australia from data provided by the notifier.

The effect of the notified chemical was tested at a range of concentrations up to 2.50 $mg.L^{-1}$ in the fish acute toxicity test. These concentrations were well above the solubility limit of the chemical in pure water and were achieved by dissolving the chemical in N,N-dimethylformamide. Some cloudiness in the test media was observed. At these concentrations no effects on the fish were observed.

The effect of the notified chemical on *Daphnia* was examined at five concentrations in replicates (mean measured concentrations of 0.017, 0.026, 0.045, 0.082 and 0.158). The EC_{50} were determined separately for each set of replicate concentrations. The test report provided by the notifier suggested that the presence of the N,N-dimethylformamide carrier solvent, used to prepare the stock solution of the notified chemical, had an effect on the toxicity of the notified chemical. As noted from the table the company was unable to accurately estimate an EC50 but Environment Australia calculates an EC_{50} of 0.128 $mg.L^{-1}$ using combined replicates and carrier solvent control data as the blank. This would indicate that the effect of the carrier solvent is not likely to be significant.

The chronic effect of the notified chemical to *Daphnia* was investigated at five

concentrations (29, 49, 110, 200 and 400 µg.L^{-1}). Survival rates of 40%, 43% and 5% were observed for the three highest test concentrations 110, 200 and 400 µg.L^{-1}, respectively. Survival of equal and greater than 93% was observed in all remaining concentrations. Sublethal effects including lethargy, reduced pigmentation and size were observed at all concentrations of the notified chemical. Statistically significant reductions in the number of offspring were observed at concentrations above all concentrations tested.

The effect of the notified chemical was also only tested at one concentration (1.87 mg.L^{-1}) in the algal growth inhibition test. This concentration was also well above the solubility limit of the chemical in pure water and was achieved by dissolving the chemical in N,N-dimethylformamide. The concentration of the test material decreased from 2.145 mg.L^{-1} to 1.87 mg.L^{-1} during the duration of the test. This decrease in concentration was attributed to precipitation. No adverse effect on either the algal growth rate or biomass was observed during the test.

The ecotoxicity data for the notified chemical indicate that the notified chemical is not toxic to fish, algae or microorganisms at concentrations well above its solubility. However, the results of the acute and chronic toxicity studies for *Daphnia* indicate that the chemical can be considered to be very highly toxic.

11. ASSESSMENT OF ENVIRONMENTAL HAZARD

The maximum expected daily discharge of the chemical to sewer is 21 kg. In the sewer, this quantity will be diluted initially by flow from the Kodak plant (which reaches approximately 400,000 L per day). This flow mixes into the average daily inflow to the Werribee treatment plant of 500 ML, giving a maximum concentration in sewage effluent of 420 ppb.

This PEC value indicates a Q (acute) value of 3.3, EC_{50} of 128 ppb (for the most sensitive organism, *Daphnia*). This hazard quotient indicates a potential acute aquatic hazard. Comparison of the chronic reproduction EC_{50} (58 µg.L^{-1}) for *Daphnia* with the PEC also indicates a potential chronic aquatic hazard. However, CIN 10097929 will only enter the aquatic environment when the aqueous solution containing the notified substance is discharged to the sewer. Most of the chemical is expected to be removed through the sewerage treatment process by partitioning to sediment (sludge) or soils of Weribee Farm. Based on Level 1 Mackay calculations, the concentration of the notified chemical in receiving waters from Weribee farm would be reduced to less than 13 ppb (greater than 97% removal).

Additionally, less than 1% of wastes may be sent to a secured landfill. This would equate to less than 165 kg of CIN 10096270 per annum. Residues going to secured landfill and those in film and paper going to landfill, would presumably degrade at a slow rate, depending on conditions. The chemical is not expected to be mobile in landfill given its low water solubility and high partition coefficient of the chemical.

Due to the flammability of this substance, residues in filter cake would be

destroyed during smelting, as would residues in used containers, paper and film if incinerated.

12. ASSESSMENT OF PUBLIC AND OCCUPATIONAL HEALTH AND SAFETY EFFECTS

From the animal studies, the notified chemical shows low acute oral and dermal toxicity. It is not a skin irritant nor a skin sensitiser, but caused slight irritation to eye. No mutagenicity in bacteria nor induction of chromosomal aberrations and polyploidy in cells culture were observed with or without metabolic activation. Based on the available data, the notified chemical is not classified as hazardous according to Worksafe Australia's *Approved Criteria for Classifying Hazardous Substances* {National Occupational Health and Safety Commission, 1994 #9}.

The transporting and storage workers are unlikely to be exposed to the notified chemical except in the event of accident.

Workers at the mix tank site are likely to be exposed to the notified chemical through dermal contact during weighing, addition, mixing and packaging. The addition to the mix tank will be conducted using air extractors fitted with fibreglass air filters and mechanical ventilation. Considering the nature of the notified chemical and use pattern, the health risk for the workers at mix tank site is expected to be low.

Workers at the melt tank site will be exposed to the notified chemical when they add the mixture produced at the mix tank site to melt tanks. Their exposure would be low due to the low concentration of the notified chemical in the mixture. The occupational health risk for these workers is considered to be low.

While public exposure to the notified chemical is possible following an accident during transport of the notified chemical, under normal conditions of transport, handling and industrial use, the likelihood of public exposure to this material is very low. The clean-up and disposal procedures recommended in the Material Safety Data Sheets (MSDS) will assist in minimising public exposure in the event of a spill. There may be widespread public contact with photographic articles containing the notified chemical; however, the notified chemical will be under overcoat layers. On this basis, the potential for public exposure to the notified chemical during use of articles incorporating this material is minimal.

13. RECOMMENDATIONS

To minimise occupational exposure to CIN 10096270 the following guidelines and precautions should be observed:

- Safety goggles should be selected and fitted in accordance with Australian Standard (AS) 1336 {Standards Australia, 1994 #21} to comply with

Australian/New Zealand Standard (AS/NZS) 1337 {Standards Australia/Standards New Zealand, 1992 #23};

- Industrial clothing should conform to the specifications detailed in AS 2919 {Standards Australia, 1987 #18}and AS 3765.1 {Standards Australia, 1990 #19};
- Impermeable gloves or mittens should conform to AS 2161 {Standards Australia, 1978 #17};
- Spillage of the notified chemical should be avoided, spillages should be cleaned up promptly with absorbents which should then be put into containers for disposal;
- Good personal hygiene should be practised to minimise the potential for ingestion;
- A copy of the MSDS should be easily accessible to employees.

14. MATERIAL SAFETY DATA SHEET

The MSDS for the notified chemical was provided in accordance with the *National Code of Practice for the Preparation of Material Safety Data Sheets* {National Occupational Health and Safety Commission, 1994 #13}.

This MSDS was provided by the applicant 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 applicant.

15. 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.

16. REFERENCES

1. Organisation for Economic Co-operation and Development 1995-1996, *OECD Guidelines for the Testing of Chemicals on CD-Rom*, OECD, Paris.

2. Connell, D.W. 1989, 'General characteristics of organic compounds which exhibit bioaccumulation', in *Bioaccumulation of Xenobiotic Compounds*, CRC Press, Boca Raton.

3. Shepard, K.P. 1995, *Acute Dermal Toxicity Study in the Rat*, Project no., 95-0059A1, Health and Environment Laboratories, Eastman Kodak, New York.

4. Sakal L 1995, *Acute Dermal Irritation in the Rabbit*, Project no., 95-0059A2, Health and Environment Laboratories, Eastman Kodak, New York.

5. Shepard, K.P. 1995, *Acute Eye Irritation Study in the Rabbit*, Project no., 95-0059A6, Health and Environment Laboratories, New York.

6. Shepard, K.P. 1995, *Skin Sensitisation Study (Maximization Test) in the Guinea Pig*, Project no., 9500059A3, Health and Environmental Laboratories, Eastman Kodak, New York.

7. Faber, W. 1997, *Four-week Oral Toxicity Study in Rats*, Project no., TX-96-162, Eastman Kodak Company, USA.

8. Lawlor, T. 1995, *Mutagenicity Test with EK 95-0059, in the Salmonella-Escherichia coli/Mammalian-Microsome Reverse Mutation Assay with a Confirmatory Assay*, Project no., 16973-0-409R, Virginia.

9. Murli, H. 1995, *Mutagenicity Test on EK 95-0059, Measuring Chromosomal Aberrations in Chinese Hamster Ovary (CHO) Cells: with a Confirmatory Assay with Multiple Harvests*, Project no., 16973-0-437CO, Virginia.

10. National Occupational Health and Safety Commission 1994, *Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(1994)]*, Australian Government Publishing Service, Canberra.

11. Standards Australia 1994, *Australian Standard 1336-1994, Eye protection in the Industrial Environment*, Standards Association of Australia, Sydney.

12. Standards Australia/Standards New Zealand 1992, *Australian/New Zealand Standard 1337-1992, Eye Protectors for Industrial Applications*, Standards Association of Australia/Standards Association of New Zealand, Sydney/Wellington.

13. Standards Australia 1987, *Australian Standard 2919-1987, Industrial Clothing*, Standards Association of Australia, Sydney.

14. Standards Australia 1990, *Australian Standard 3765.1-1990, Clothing for Protection against Hazardous Chemicals Part 1 Protection against General or Specific Chemicals*, Standards Association of Australia, Sydney.

15. Standards Australia 1978, *Australian Standard 2161-1978, Industrial Safety Gloves and Mittens (excluding electrical and medical gloves)*, Standards Association of Australia, Sydney.

16. National Occupational Health and Safety Commission 1994, *National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC:2011(1994)]*, Australian Government Publishing Service, Canberra.

Attachment 1

The Draize Scale for evaluation of skin reactions is as follows:

Erythema Formation	*Rating*	*Oedema Formation*	*Rating*
No erythema	0	No oedema	0
Very slight erythema (barely perceptible)	1	Very slight oedema (barely perceptible)	1
Well-defined erythema	2	Slight oedema (edges of area well-defined by definite raising	2
Moderate to severe erythema	3	Moderate oedema (raised approx. 1 mm)	3
Severe erythema (beet redness)	4	Severe oedema (raised more than 1 mm and extending beyond area of exposure)	4

The Draize scale for evaluation of eye reactions is as follows:

CORNEA

Opacity	*Rating*	*Area of Cornea involved*	*Rating*
No opacity	0 none	25% or less (not zero)	1
Diffuse area, details of iris clearly visible	1 slight	25% to 50%	2
Easily visible translucent areas, details of iris slightly obscure	2 mild	50% to 75%	3
Opalescent areas, no details of iris visible, size of pupil barely discernible	3 moderate	Greater than 75%	4
Opaque, iris invisible	4 severe		

CONJUNCTIVAE

Redness	*Rating*	*Chemosis*	*Rating*	*Discharge*	*Rating*
Vessels normal	0 none	No swelling	0 none	No discharge	0 none
Vessels definitely injected above normal	1 slight	Any swelling above normal	1 slight	Any amount different from normal	1 slight
More diffuse, deeper crimson red with individual vessels not easily discernible	2 mod.	Obvious swelling with partial eversion of lids	2 mild	Discharge with moistening of lids and adjacent hairs	2 mod.
Diffuse beefy red	3 severe	Swelling with lids half-closed	3 mod.	Discharge with moistening of lids and hairs and considerable area around eye	3 severe
		Swelling with lids half-closed to completely closed	4 severe		

IRIS

Values	*Rating*
Normal	0 none
Folds above normal, congestion, swelling, circumcorneal injection, iris reacts to light	1 slight
No reaction to light, haemorrhage, gross destruction	2 severe