

File No: NA/35

Date:

**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION  
AND ASSESSMENT SCHEME**

**FULL PUBLIC REPORT**

**C-1824**

This Assessment has been compiled in accordance with the provisions of the Industrial Chemicals (Notification and Assessment) Act 1989 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 Arts, Sport, the Environment and Territories and the assessment of public health is conducted by the Department of Health, Housing and Community Services.

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Director  
Chemicals Notification and Assessment

**FULL PUBLIC REPORT**

**C-1824**

**1. APPLICANT**

Kodak Australasia Pty. Ltd., 173 Elizabeth Street, Coburg,  
Victoria, 3058.

**2. IDENTITY OF CHEMICAL**

**Other name:** C-1824

**Molecular weight:** 698.4

C-1824 is classified as a non-hazardous chemical to humans as the toxicological data submitted suggest that it is unlikely to produce any toxic effects. For this reason, its chemical name, molecular formula and structural formula have been exempted from publication.

**3. METHODS OF DETECTION AND DETERMINATION:**

High Performance Liquid Chromatography; Ultra-violet spectroscopy; Infra-red spectroscopy and Nuclear Magnetic Resonance Spectroscopy.

**Spectral Data:**

Ultra-violet (UV) spectroscopy:

absorbance maximum in basic medium: 211 nm, 233 nm, 253.5 nm, 301.5 nm

Infra-red (IR) spectral data and Nuclear Magnetic Resonance (NMR) spectral data were provided.

**4. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:** white powder

<b>Melting point:</b>	73.45°C $\pm$ 0.12°C
<b>Density:</b>	1.177 x 10 <sup>3</sup> kg/m <sup>3</sup> @ 23°C
<b>Vapour pressure:</b>	<1.3 x 10 <sup>-7</sup> kPa @ <64°C
<b>Water solubility:</b>	<0.5 x 10 <sup>-3</sup> g/L @ 25°C
<b>Fat solubility:</b>	>10 g/100 g fat @ 37°C
<b>Hydrolysis:</b>	not provided as the chemical is virtually insoluble in water
<b>Partition coefficient: log P<sub>o/w</sub></b>	>3.2 @ 25°C
<b>Adsorption/Desorption:</b>	not provided as the chemical is virtually insoluble in water
<b>Dissociation constant:</b>	not provided as the chemical is virtually insoluble in water or organic solvent/water mixtures
<b>Flash point:</b>	not provided as the chemical has negligible vapour pressure
<b>Flammability:</b>	combustible
<b>Combustion products:</b>	carbon dioxide, carbon monoxide, HCL, and oxides of nitrogen
<b>Autoignition temperature:</b>	not autoignitable as the chemical has negligible vapour pressure
<b>Explosive properties:</b>	capable of dust explosion
<b>Decomposition temperature:</b>	390°C
<b>Decomposition products:</b>	methane, hydrogen chloride and oxides of carbon

**Reactivity:** oxidising; incompatible with strong oxidisers, combustible materials and reducing agents.

**Particle size:** (mean)  $8.68 \times 10^2 \mu\text{m}$

#### Comments on physico-chemical properties

The High Pressure Liquid Chromatography (HPLC) detection limit of  $0.5 \times 10^{-3}$  g/L in the water solubility test is relatively insensitive. In environmental terms a solubility of this order is not low. Lack of a discrete solubility result precludes any calculations to more accurately define environmental fate in the water compartment, or to ascertain whether *Daphnia* reproduction and algal growth inhibition tests are relevant. At the greater than one tonne stage a more accurate figure should be provided. This could either include a more sensitive HPLC detector, or a method of estimation of water solubility from structural characteristics and other physical/chemical properties (1), in particular a more accurate result for partition coefficient.

Hydrolysis was tested at three pH levels (4, 7 and 9), with acetonitrile as co-solvent. Insolubility of the notified chemical again precluded a definitive result on hydrolysis. A similar situation is likely to occur under environmental conditions and thus hydrolysis in the field is unlikely and no further testing should be required.

Insolubility in water also precluded a definitive result for partition coefficient (an apparent error in the notifier's calculations indicates that the reported result should be >2.2 rather than 3.2).

In either case this is insufficiently accurate and a more accurate result through means other than the shake flask method should be provided when import level exceed one tonne. Testing according to the HPLC method of *OECD Guidelines for Testing of Chemicals No: 117* (2) may yield such results. More accurate determination of  $P_{O/W}$  value will also enable estimation of a more reliable water solubility result.

An adsorption desorption test was also not performed due to the insolubility of the notified chemical. As noted below this is likely to bind strongly to soils/sediment but the extent of desorption is unclear. Again in view of the amount released to

water and its accumulation potential, a result should be provided when imports exceed one tonne.

The notified chemical contains no acidic or basic groups. Therefore lack of a result for dissociation constant is acceptable.

## **5. PURITY OF THE CHEMICAL**

**Degree of purity:** 99.5% w/w

**Impurities:** unknown (0.5% w/w)

**Additives/Adjuvants:** none

## **6. USE**

C-1824 will be imported for use in the manufacture of photographic film or paper. It will be present as a minor component in a gelatin dispersion. After importation, the notified chemical will be reformulated into a gelatin dispersion before being incorporated into the film or paper. It is estimated that no more than 1 tonne per year will be imported into Australia.

## **7. PUBLIC EXPOSURE**

C-1824 will be imported in sealed shipping containers therefore public exposure to this chemical during transport, is unlikely.

Under correct usage, public exposure to the notified chemical will be minimal due to minimal release of the chemical into the environment as the notifier states that it will be totally consumed in the manufacture of the dispersion and once incorporated into the film or paper, it will be coated by layers of overcoatings. According to the notifier, approximately 10% of the gelatin dispersion containing the notified chemical could be released to the municipal sewer, with an additional 10% released from automated processing equipment. However, public exposure will be minimised by secondary treatment of the municipal sewer at a facility operated by the Melbourne and Metropolitan Board of Works. In addition, <1% of waste may be sent to a secured landfill but although the notified chemical is fat soluble and is

not readily biodegradable, bioaccumulation will be low due to its low level in the dispersion.

When the photographic film or paper is used, public exposure to the notified chemical will be negligible because it will be present as a minor component in the film or paper, and according to the notifier, once the dispersion is incorporated in the film or paper it will be coated by layers of overcoatings.

## **8. OCCUPATIONAL EXPOSURE**

### **8.1 Reformulation process description**

The notified chemical will be reformulated into a gelatin dispersion at only one site in Australia.

It is stated in the notification that the notified chemical will be imported as pre-weighed units therefore routine re-weighing in Australia will not be necessary. The pre-weighed chemical in the form of a dry powder and other ingredients as determined by the formulation, will be added to mix tanks approximately 25 times a year. The addition of the notified chemical will take approximately 15 minutes each time. Mixing will be conducted under local exhaust ventilation. After mixing, the resulting gelatin dispersion will be chilled and then stored in closed plastic bags for up to several weeks. During use, the dispersion will be taken out of the bag and added to melt tanks, where other ingredients will be added. The resulting gelatin solution will then be pumped to controlled automatic processing equipment where the notified chemical will be incorporated into the film or paper.

### **8.2 Occupational Exposure**

As the notified chemical will be imported and stored in sealed shipping containers, significant risk of worker exposure during transport and storage is unlikely. After reformulation, the notified chemical in a gelatin dispersion, will be stored in closed plastic bags in chilled storage areas. Significant risk of exposure to the notified chemical in the gelatin dispersion during storage is not anticipated even in the event of an accidental spillage as it will be present at a very low level in the dispersion.

Potential exposure to the notified chemical will be during its handling and use. Operators involved with the mixing, packing, melting, equipment cleaning, and use of the gelatin dispersion, may come into direct contact with the notified chemical if engineering controls and personal protection measures are not implemented. The major route of direct contact with the notified chemical will be through the skin. C-1824 has a molecular weight of <1000 and a partition coefficient of >3.2 at 25°C, as a result, it has the potential to be absorbed through biological membranes such as the skin. As C-1824 is virtually insoluble in water and has a high melting point, very low vapour pressure, and particle size above the inspirable range (>185 µm), exposure through inhalation is likely to be minimal. Exposure to the notified chemical after reformulation will be very low due to its low level in the dispersion. It is stated in the notification that once the notified chemical becomes incorporated in the film or paper, no exposure is likely as the chemical will be protected by layers of overcoating. Therefore, it is anticipated that exposure of handlers and users of the treated film or paper, to the notified chemical, will be negligible.

## **9. ENVIRONMENTAL EXPOSURE**

### **. Release**

The notified chemical will be mixed with other chemicals about 25 times a year to form a gelatin dispersion. The notifier has indicated that there are two aqueous gelatin dispersions, at 70 and 38 g/kg respectively.

The notifier anticipates that approximately 10% of the aqueous gelatin solution containing the notified chemical and a further 10% from the automated processing equipment could enter municipal sewer, which will only be from the notifier's factory in Melbourne. Thus a total of about 0.2 tonne may be discharged per annum. Less than 1% is expected to be discarded at a secured landfill.

### **. Fate**

Results of ready biodegradability tests (2% and 4% degradation at concentrations of 10 and 20 mg/L respectively) (3) indicate that the notified chemical is not likely to be biodegraded in the sewerage system and will enter waterways unchanged. However due

to its insolubility it is likely to partition onto sediment/sludge, or onto suspended solids. Thus the actual amount entering receiving waters is likely to be low compared with that entering the sewer. Sludge is likely to be spread on land at Werribee.

The notified chemical is virtually insoluble in water, is highly soluble in fat, is not readily biodegraded and therefore potentially bioaccumulative. However, the high molecular weight and relatively large molecular size may preclude this (4). A more accurate value for  $P_{O/W}$  would be essential to be able to define this more accurately, eg. a  $P_{O/W} > 6$  would indicate a reduced bioaccumulation potential (5).

The portion that is discarded at the landfill or applied to land is likely to remain soil-bound. Prospects of leaching of the chemical to any appreciable extent appear to be minimal, in view of the low solubility and likely high adsorption.

## 10. EVALUATION OF TOXICOLOGICAL DATA

### 10.1 Acute Toxicity

Table 1                      Summary of the acute toxicity of C-1824

Test	Species	Outcome	Reference
Oral	rat	LD <sub>50</sub> : >2000 mg/kg	6
Dermal	rat	LD <sub>50</sub> : >2000 mg/kg	7
	guinea pig	non-irritant	8
Eye	rabbit	slight irritant	9
	guinea pig	non-sensitising	
10			



#### **10.1.1 Oral toxicity (6)**

This study was carried out in accordance with the *OECD Guidelines for Testing of Chemicals No: 401* (11).

A single dose of 2000 mg/kg of C-1824 in a 0.5% aqueous solution of guar gum was administered by gavage to 10 *CD(SD)BR VAF/PLUS* rats (five males and five females). The animals were observed for 14 days. No deaths were noted during the study. Gain in bodyweight was unaffected. No abnormal clinical signs were noted. At necropsy, hydrometra of the uterus was observed in three females, and haemorrhage of the thymus was observed in one male. The latter effect is considered to be an incidental finding due to its low incidence of occurrence.

The results of this study indicate an acute oral LD<sub>50</sub> of >2000 mg/kg for C-1824 in male and female rats.

#### **10.1.2 Dermal toxicity (7)**

This study was carried out in accordance with the *OECD Guidelines for Testing of Chemicals No: 402* (12).

A single dose of 2000 mg/kg of C-1824 moistened with water, was administered by occlusive application to the shaved backs of 10 (five males and five females) *CD(SD)BR VAF/PlusT* rats for 24 hours. The animals were observed for 14 days. No deaths were noted during the study period. Gain in bodyweight was unaffected. No abnormal clinical signs were observed. At necropsy, unilateral hydronephrosis was observed in one male, and single cases of thymus haemorrhage and hydrometra of the uterus were noted in the females. The former two effects are considered to be incidental findings due to their low incidence of occurrence; on the other hand, hydrometra of the uterus may be treatment related because it was found in 60% of cases in the acute oral toxicity study.

The results of this study indicate an acute dermal LD<sub>50</sub> of >2000 mg/kg for C-1824 in male and female rats.

#### **10.1.3 Skin irritation (8)**

This study was carried out in accordance with the *OECD Guidelines for Testing of Chemicals No: 404* (13).

A single dose of 0.5 g of C-1824 moistened with water was administered by occlusive application to the clipped dorsal skin of three *Hra:(NZW)SPF* rabbits for four hours. The site of application was examined at 1, 24, 48 and 72 hours post exposure and thereafter at 7 and 14 days after the administration of the test substance. Effects were graded according to the numeric system described in the OECD Guideline No: 404 (13). No abnormal clinical signs or signs of irritation were observed during the study period. All animals survived the 14-day observation period and gain in bodyweight was unaffected. No necropsy was performed.

The results of this study indicate that C-1824 is not a skin irritant in rabbits at the concentration tested.

#### **10.1.4 Eye irritation (9)**

This study was carried out in accordance with the *OECD Guidelines for Testing of Chemicals No: 405* (14).

A single dose of 0.1 g of C-1824 was instilled into the conjunctival sac of one eye of each of six *Hra:(NZW)SPF* rabbits. Three of the eyes were immediately washed with running distilled water; the other three eyes were not irrigated. The untreated eye of each rabbit served as the control. The eyes were observed immediately after exposure and at 1, 24, 48 and 72 hours thereafter. Both eyes of each rabbit were tested with fluorescein dye and were examined for staining 24 hours after exposure. Effects were graded according to the numeric system described in the OECD Guideline No: 405 (14). Slight erythema of the conjunctivae and nictitating membranes were observed in all the washed and unwashed treated eyes. No corneal or adnexal staining was observed in any of the treated eyes or controls. One of the three unwashed treated eyes was normal 24 hours after exposure and the remaining two unwashed eyes were normal at 48 hours. The three washed treated eyes were normal 24 hours after exposure. No non-ocular effects were noted during the 72-hour period.

The results of this study indicate that C-1824 is a slight eye irritant in rabbits at the concentration tested.

#### 10.1.5 Skin sensitisation (10)

This study was carried out in accordance with the *OECD Guidelines for Testing of Chemicals No: 406* (15).

The Buehler method (16, 17) was used. Effects were graded according to the numeric system described in (15). The sensitivity of the strain of guinea pigs to be used in this study was tested with a known skin sensitiser, 1-chloro-2,4-dinitrobenzene. Positive sensitisation responses were observed in the animals tested.

##### Preliminary study

A single dose of 0.5 g of C-1824 moistened with water (100% concentration) was administered by occlusive application to the shaved backs of three *Crl:(HA)BR VAF/PlusT* guinea pigs for six hours. The application site was examined 24 and 48 hours after exposure. No signs of irritation were seen in the animals tested. The minimal irritant concentration was not determined and the maximal non-irritant concentration was 100%.

##### Induction and Challenge study

20 *Crl:(HA)BR VAF/PlusT* guinea pigs (10 control and 10 induced animals - males and females) were used.

A 100% concentration of 0.5 g of C-1824 moistened with water was administered by occlusive application to the shaved backs of 10 guinea pigs for six hours. This procedure was repeated weekly for three weeks. Two weeks after the last induction procedure, the same 10 animals were challenged with the maximal non-irritant concentration of 100% but on the opposite side of the midline from the side used previously. The 10 control animals which were previously untreated were also subjected to the same challenge procedure. Effects were graded according to the numeric system described in (15). No signs of irritation or abnormal clinical signs were seen in any animal from both groups. Gain in bodyweight was unaffected. Animals were not necropsied at the conclusion of the study.

The results of this study indicate that C-1824 is not a skin sensitiser in guinea pigs at the concentration tested.

## 10.2 Repeated dose oral toxicity (18)

This study was carried out in accordance with the *OECD Guidelines for Testing of Chemicals No: 407* (19).

C-1824 in corn oil was administered by gavage once daily to groups of five male and five female *CD(SD)BR* rats at dose levels of 0, 100, 300 and 1000 mg/kg for a total of 22 doses over 30 days.

No deaths were noted during the study. Gain in bodyweight was unaffected. Alopecia was observed in one male animal from each of the low, intermediate and high dose groups and in one female from each of the intermediate and high dose groups. Single cases of dehydration, decreased faeces and neck wound were reported in males of the intermediate dose group; and diarrhoea and hair of inguinal region wetted by urine were observed in one female animal of the intermediate dose group. These clinical signs are considered to be not treatment related because of their low incidence of occurrence and the lack of a dose-response.

In both male and female rats, minimal abnormalities in red blood cells such as Howell-Jolly bodies, poikilocytosis and anisocytosis were observed at all dose levels in males and in the high dose group in females with anisocytosis also observed in the controls. These cellular abnormalities are considered to be not treatment related because of their low incidence of occurrence and the lack of a dose-response, and in the case of anisocytosis, the presence of such findings in the controls.

When compared with the controls, sorbitol dehydrogenase levels were decreased at all dose levels in male rats. However, the total bilirubin level was increased in high dose males. In females, alanine aminotransferase levels were increased and urea nitrogen levels were decreased in the high dose group. These effects are considered to be not indicative of toxicity due to the lack of concomitant changes in organ pathology or the direction of the response was not consistent with organ toxicity.

No significant differences were noted in mean organ weight or bodyweight between the controls and the treated animals.

At necropsy, gross findings in males showed single cases of calculus and mucosa thickening of the urinary bladder, and unilateral hydronephrosis, in males of the low dose group; in

females, two cases of hydrometra were noted in the intermediate group and one case in the high-dose group. Thymus haemorrhage was seen in all groups including the control group. Histopathology showed in high-dose males, inflammation of the myocardium (1/5) and kidneys (1/5), hypertrophy of the thyroid glands (2/5), decreased thyroid colloid (2/5), and single cases of testicular and epididymides changes such as decreased spermatozoa, and spermatid and spermatocyte degeneration. In addition, hyperplasia of the urinary bladder mucosa (1/5) and inflammation of the thyroid gland (1/5) were seen in low and intermediate dose males respectively. In females, bilateral hydronephrosis (1/5 of high dose group) and hydrometra (2/5 of the high dose group and 2/2 of the intermediate dose group) were observed. All of the histopathology effects listed above were not seen in control animals. Hydrometra was also reported in 3/5 females administered 2000 mg/kg of C-1824 in the acute oral toxicity study (6) and in 1/5 females in the acute dermal toxicity study (7). It should be noted that the incidence of hydrometra could possibly be higher in the 28-day study as only two animals out of five from the intermediate dose group were examined for this effect and in both of these animals, a positive finding was noted. Although a dose-related effect cannot be established from the data accumulated, the number of cases reported with C-1824 suggest that hydrometra maybe treatment related. The notifier states that thyroid hypertrophy in high-dose males is treatment related as such an effect is infrequently seen as a spontaneous change. It is also stated in the notification that testicular and epididymides changes are considered to be not treatment related as they occur spontaneously in rats of the strain used in this study and also because of their low incidence of occurrence. The remaining histopathological effects reported above are considered to be not treatment related due to their low incidence of occurrence and the lack of a dose-response.

### **10.3 Genotoxicity**

#### **10.3.1 *Salmonella typhimurium* reverse mutation assay (20)**

This study was carried out in accordance with the *OECD Guidelines for Testing of Chemicals No: 471* (21).

C-1824 at concentrations of 10000, 6670, 3330, 1000, 667 and 333 ug/plate was tested in two independent experiments for gene mutation according to the direct plate incorporation method (22)

using *Salmonella typhimurium* strains TA 98, TA 100, TA 1535, TA 1537 and TA 1538, both in the presence and absence of microsomal enzymes (S9 mix). Positive controls used were 2-aminoanthracene, 2-nitrofluorene, sodium azide and ICR-191. Dimethylformamide was used as the vehicle control. When compared to the vehicle control, in the presence or absence of microsomal activation, C-1824 at the concentrations tested did not produce any statistically significant dose-response increase in the number of revertant colonies. On the other hand, the positive controls showed marked increases.

The results of this study suggest that C-1824 was non-mutagenic under the test conditions reported.

#### **10.3.2 Micronucleus assay in the bone marrow cells of the mouse (23)**

This study was carried out in accordance with the *OECD Guidelines for Testing of Chemicals No: 474* (24).

C-1824 in corn oil was administered by gavage to groups of 20 *Swiss CD-1, Cr1:CD-1 (ICR)BR* mice (ten males and ten females) at dose levels of 0, 200, 1000 and 2000 mg/kg. The vehicle, corn oil, was used as negative control and cyclophosphamide was used as the positive control. Groups of ten animals (five males and five females) from each dose level were harvested at 24 or 48 hours after administration of the test substance or the vehicle. The positive control group which consisted of 10 animals (five males and five females), was harvested at 24 hours only. When compared to the negative control, no statistically significant increase in micronucleated polychromatic cells was observed in any of the animals treated with C-1824. In contrast, the positive control showed statistically significant increases at 24 hours in both male and female rats.

The results of this study suggest that C-1824 was not genotoxic under the test conditions reported.

#### **10.4 Overall assessment of toxicological data**

C-1824 has low acute oral and dermal toxicity (oral LD<sub>50</sub> in rats: >2000 mg/kg; dermal LD<sub>50</sub> in rats: >2000 mg/kg). Animal tests show that it is a slight eye irritant but not a skin sensitiser nor a skin irritant. A short-term repeated dose study shows

incidences of hydrometra in female rats of the intermediate (300 mg/kg) and high-dose (1000 mg/kg) groups and thyroid hypertrophy in male rats of the high-dose group. Results from both the *Salmonella typhimurium* reverse mutation assay and the *in-vivo* mouse micronucleus assay suggest that C-1824 is not genotoxic.

## 11. ASSESSMENT OF ENVIRONMENTAL EFFECTS

The following results were obtained in static tests using nominal concentrations:



Test	Species	Results (mg/L)			Reference
		LC50	EC50	NOEC	
96 h acute	<i>Pimephales promelas</i> (fathead minnow)	>31	-	31	25
48 h acute	<i>Daphnia magna</i>	-	29	2.8	26

OECD Guidelines for Testing of Chemicals No: 203 (27) and No: 202 (28) were followed. Static conditions were used for fish and static renewal for *Daphnia*.

Concentrations tested (1.6 - 80 mg/L) for *Daphnia* and (0.31 - 31 mg/L) for fathead minnows all exceeded the aqueous solubility of the notified chemical and undissolved material was observed throughout in all solutions. Thus while the actual concentration is unclear, the fish and *Daphnia* are not expected to suffer acute effects up to the limit of solubility (0.5 ppm) of the chemical.

The 96 h NOEC for *Daphnia* is stated to be conservative, a few test organisms exhibited adverse effects after being encumbered by undissolved test material at higher doses.

An activated sludge respiratory inhibition test (29) using OECD Guidelines for Testing of Chemicals No: 209 (30) was also conducted. Respiratory inhibition in microorganisms following a three hour exposure to the acetone-solubilised chemical was measured. A NOEC value of >100 mg/L (highest concentration tested) was observed. These results suggest that the chemical should not affect sewerage treatment plants.

Results for *Daphnia* reproduction and algal growth inhibition are not available at this stage. In view of the extent of discharge to water these should be provided when imports exceed one tonne. Alternatively, the notifier should provide scientific justification (eg. very low concentration in receiving water, low bioaccumulation potential, lack of toxicity of similar compounds to algae) to show why these tests are not relevant.

## 12. ASSESSMENT OF ENVIRONMENTAL HAZARD

Up to 0.2 tonne of the notified chemical may be discharged to sewage treatment works per annum where it is likely to adsorb to sludge or soil. As noted above, the dispersion is made up about 25 times a year and assuming equal lots about 8 kg per batch is discharged. Assuming a "worst case", the following calculation using the notifier's estimates indicates that the final concentration reached will be 1.2 ppm.

Concentration in solution	70 g/kg
Rate of dilution in sewer	$10^{-4}$
Concentration reaching sewer	7 ppm
Rate of dilution at Werribee	5-25 times
Final concentration	1.2-0.3 ppm

This calculation assumes there will be no losses due to adsorption to sediment etc. The concentration is clearly of concern and underlies the need to provide a more accurate estimation of fate in the aquatic compartment to allow a better estimate of environmental hazard.

The Department of the Arts, Sport, the Environment and Territories has performed a simpler calculation based on average daily flow rate (500 ML) at Werribee treatment complex (31). Dissolution of 8 kg in this volume of water (assuming equal mixing) leads to a concentration of 16 ppb, much lower than the above.

## 13. ASSESSMENT OF PUBLIC AND OCCUPATIONAL HEALTH AND SAFETY EFFECTS

So far, no information on the effects of C-1824 on human health has been reported. Animal tests indicate that C-1824 is a slight eye irritant.

C-1824 is combustible and is capable of a dust explosion. However, good housekeeping and the implementation of control measures in the workplace such as adequate ventilation, the elimination of ignition sources, hot surfaces and high

temperatures, and the earthing and dustproofing of all electrical fittings, machinery and equipment, will minimise the possibility of a dust explosion.

Under normal use conditions when control and precautionary measures are implemented, it is unlikely that the notified chemical will present any significant acute health or safety hazard to workers.

#### **14. RECOMMENDATIONS FOR THE CONTROL OF OCCUPATIONAL EXPOSURE AND OCCUPATIONAL HAZARDS**

To minimise worker exposure and occupational hazard in the factory environment, the following guidelines and precautions should be observed:

- . the workplace should be well ventilated and local exhaust ventilation should be employed, particularly for the collection of foreseeable escapes of dust;
- . enclosed systems should be used;
- . good work practices should be implemented to avoid the generation of a dust cloud, splashings or spillages;
- . storage of the notified chemical and its dispersion should be in robust sealable containers. The powder form of the notified chemical should be stored in well ventilated places away from heat and sources of ignition;
- . good housekeeping and maintenance should be practised especially to avoid the accumulation of dust in the workplace. Spillages should be cleaned up promptly and a vacuum cleaner should be used to pick up the powder so as to avoid the generation of a dust cloud;

- . suitable personal protective equipment which comply with Australian standards (AS) should be worn such as:
  - . safety glasses (AS 1337) (32);
  - . protective gloves (AS 2161) (33);
  - . protective clothing; and
    - . respirators (AS 1716) (34) in situations when ventilation is not available or insufficient.
- . all sources of ignition, hot surfaces or high temperatures should be eliminated in areas where the powder form of the notified chemical will be handled. Electrical fittings, machinery and equipment should be earthed and dust-proof;
- . personal hygiene should be observed.
- . a copy of the Material Safety Data Sheet for the notified chemical should be easily accessible to employees.

#### **15. MATERIAL SAFETY DATA SHEET (MSDS)**

The Material Safety Data Sheet for C-1824 (Attachment 1) was provided in Worksafe Australia format (35). This MSDS was provided by Kodak Australasia Pty Ltd as part of their notification statement. It is reproduced here as a matter of public record. The accuracy of this information remains the responsibility of Kodak Australasia Pty Ltd.

#### **16. REQUIREMENTS FOR SECONDARY NOTIFICATION**

Under the *National Industrial Chemicals (Notification and Assessment) Act 1989* (the Act), secondary notification of C-1824 shall be required if any of the circumstances stipulated under subsection 64(2) of the Act arise. No other specific conditions are prescribed.

## 17. REFERENCES

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