

File No: **NA/56**

3 July 1992

NATIONAL INDUSTRIAL CHEMICALS
NOTIFICATION AND ASSESSMENT SCHEME

FULL PUBLIC REPORT

Phthalocyanine Turquoise JA 2398

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Director

Chemicals Notification and Assessment

FULL PUBLIC REPORT**Phthalocyanine Turquoise JA 2398****1. APPLICANT**

CIBA-GEIGY Australia Ltd, 140 Bungaree Road, Pendle Hill, NSW 2145.

2. IDENTITY OF THE CHEMICAL

Chemical name(s): Phthalocyanine Turquoise JA 2398

Other names F.A.T. 11'190/B Basic Blue 163

Trade name(s): Pergasol Turquoise F-2GN

Molecular weight: 1291.2 (for the salts)

Based on the nature of the chemical and the data provided, Phthalocyanine Turquoise JA 2398, is considered to be non-hazardous. Therefore, the following details have been exempted from publication:

- . chemical name;
- . CAS number;
- . molecular and structural formulae;
- . spectral data;
- . composition of Phthalocyanine Turquoise JA 2398;
- . estimated manufacture/import volume; and
- . release to Environment for each use.

3. PHYSICAL AND CHEMICAL PROPERTIES

At room temperature and atmospheric pressure (20°C and 101.3 kPa) the notified chemical is a blue powder. The notified chemical will be imported in the formulated product Pergasol Turquoise F- 2GN liquid, which is a blue liquid.

Melting Point: > 300°C

Density: 1630 kg/m³ at 20°C

Water Solubility: 57 g/L at 20°C

Fat Solubility: 0.12 mg/100 g fat at 27°C

Partition Co-efficient: log K_{OW} = -2.29 at pH 4.2 (n-octanol/water) and 25°C

Hydrolysis as a

function of pH: stable at pH 4, 7, 9 at 50°C Half life > one year at pH 4, 7 and 9 at 25°C

Autoignition Temperature: self-ignition at 280°C

Explosive Properties: non-explosive

Reactivity/Stability: Stable up to 150°C

The vapour pressure of the notified dye is not relevant because of its high molecular weight and physical nature.

Given the low level of entry of the notified substance into the soil and its stated improved fixation properties, the adsorption/desorption test was considered unnecessary. This test was not required for notification to EEC. As noted below strong adsorption to sediment may be expected.

The high water solubility of the dye and its complex mixture of phthalocyanine compounds and amphoteric nature indicates a high degree of dissociation. This was not measured as the test was not required for notification to EEC.

Data on Flash point and Flammability limits are not required for a chemical of this type.

Phthalocyanine Turquoise JA 2398 is classified as a non-hazardous chemical to human health as it is not likely to cross biological membranes with a molecular weight of 1291.2 (estimated average molar mass). For this reason, its chemical name, empirical formula and structural formula have been granted exemption from publication in the Full Public Report and Summary Report.

4. METHOD OF DETECTION AND DETERMINATION:

Infrared spectroscopy may be used to detect the notified chemical.

5. INDUSTRIAL USES

Phthalocyanine Turquoise JA 2398 will be manufactured overseas and imported into Australia as the formulated product, Pergasol Turquoise F-2GN, in liquid form.

The notified chemical will be used solely in the colouration of paper and tissue products. The notified chemical will be used in the paper industry in New South Wales, Victoria, South Australia and Tasmania.

6. OCCUPATIONAL EXPOSURE

The number of sites at which the notified chemical will be used is seven and five workers at each site may be involved in dispensing the notified chemical, a further fifteen might handle paper products during paper making, and ten workers may subsequently be involved in finishing (reeling, cutting, packaging) operations.

Exposure to the notified chemical is most likely by the dermal route. A spillage from tanks or leakage from pumps/distribution lines may lead to contact in clean up or repair operations but such exposure will be minimal.

Repacking of the Pergasol Turquoise F-2GN liquid will be carried out at two locations. This operation will be a simple transfer from one container to another, and exposure is not likely.

The notifier indicates that the following strategies will be used to reduce exposure to the notified chemical:

- . use of bulk containers, and metering pumps for dispensing the liquid dye.
- . Non-drip, quick release couplings for pumps and lines.
- . dye will be automatically diluted rather than handled manually.

7. PUBLIC EXPOSURE

Phthalocyanine Turquoise JA 2398 is a dye imported solely for the colouration of paper and tissue within the paper industry. Phthalocyanine Turquoise JA 2398 will not be made available for home-dyeing or paper making.

The notifier recommends that paper or tissue coloured with the dye should not be used where food contact can occur.

8. ENVIRONMENTAL EXPOSURE

8.1 Release

- . Use

Phthalocyanine Turquoise JA 2398 will be used in the paper industry for the industrial colouration of paper and tissue and not for home dyeing and paper making. The mills are located in cities (Melbourne and Sydney) and regional coastal locations (Nowra, Morwell, Millicent and Wesley Vale).

- . Formulation, handling and disposal

Phthalocyanine Turquoise JA 2398 will be imported as the formulated sales product, Pergasol Turquoise F - 2GN liquid, in containers (size not stated) and transported from point of entry to Thomastown Victoria and Wentworthville NSW. The

product will be repackaged in 800 litre and 30 kg containers and transported by road to all customer sites, with the exception of Wesley Vale and Burnie (Tasmania) where it will be shipped. Barring the unlikely event of a major transport accident, spillage during product distribution is not expected. Disposal of unused dyestuff (container residues and spillages) is expected to be by incineration or secure landfill.

8.2 Fate

Phthalocyanine Turquoise JA 2398 will largely replace an existing basic dye, Basic Blue 100, and have an equal affinity (fixation) to pulp and hence will result in no increase in the quantity of unfixed dyestuff being passed to paper mill effluent. The dye is used in a process which exhausts the dye content by 98% (medium colours) and 96% (dark colours) whilst still applying the appropriate level of colouration to the paper. The notifier indicates that up to 4% unfixed dyestuff, which incorporates allowances for late - dyeing and losses in startup and cleanup stages, passes to the paper mill effluent for recovery by "save - all" and "clarifier" processes. The notifier claims that 80% of unfixed dye is recovered, attached to solids (paper fines) and as precipitate with treatment chemicals, and either recycled to the paper machine or disposed of to landfill as solid waste. Two sites (Shoalhaven - Nowra and Fairfield - Melbourne) will be involved in the dark colouration of paper on 50 (average) days of the year and, given the colouration process, would be expected to discharge a higher concentration of unfixed residues as a higher level (10kg/tonne pulp vs 1kg/tonne pulp) of dye is used.

Unfixed residues from dying operations will enter the aquatic environment following three scenarios dependent upon the site of the paper mill. Unfixed residues will be pumped directly to the sea (Burnie) or to a lake (Millicent), be filtered and clarified before discharge to the sea (Wesley Vale) or to a river (Shoalhaven) or be subjected to primary and secondary treatment at Latrobe Water and Sewerage Treatment Authority (Morwell) or Werribee Sewage Treatment (Fairfield) plants before discharge (1,2). The mode of unfixed dye release from the Sydney paper mill site is unclear.

Discharge of unfixed and unrecovered dye directly or via clarification to sea will result in a large dilution process to

insignificant levels. Discharge of unfixed dye to Lake Bonney (a coastal lagoon) at Millicent will result in increasing levels of dye with time, moderated only by periodic flushing to open sea (1).

The bulk of effluent from the Maryvale pulp mill at Morwell receives primary treatment at the mill site before secondary treatment at Latrobe Water and Sewerage Authority's Dutson Downs plant and ultimate discharge to Lake Cameron (1). Unfixed dye, discharged as effluent for sewage treatment, is likely to bind to sludge or may undergo biological degradation. A study of adsorption of dyes to biomass in an activated sludge plant found that both basic and direct dyes are highly adsorbed to sludge where anaerobic degradation of the dye's substituted derivatives may occur (3). Residues which survive sewage treatment will enter freshwater or marine environments in solution.

Disposal of unused dyestuff (contaminated or spillage) is by incineration or by secure landfill according to state municipal regulations. Environmental exposure from the extraction of the substance during the paper recycling processes is likely to be insignificant given the widespread use of the coloured paper and the current low levels of paper recycling in Australia.

. hydrolysis

Hydrolytic degradation is unlikely given that tests indicate the lack of hydrolysis under any conditions.

. biodegradation

A low level of biodegradation was observed when Phthalocyanine Turquoise JA 2398 was tested using effluent from a domestic sewage plant according to OECD Guidelines 301A (10.6% loss of dissolved organic carbon in 28 d). Further, testing of biological oxygen demand confirmed this resistance to degradation ($BOD_5 = 0$ mg/g O_2), and, although the dye was susceptible to chemical oxidation ($COD_5 = 905$ mg/g O_2), the BOD/COD ratio of 0 supports suggestions that the dye is relatively undegradable.

. bioaccumulation

The bioaccumulation potential of Phthalocyanine Turquoise JA 2398 was not investigated due to its low partition coefficient

(log P= -2.29) and low fat solubility (0.12 mg.kg⁻¹). Hydrophilic dyes with log P_{OW} < 3 have been shown not to bioaccumulate (4).

9. EVALUATION OF TOXICOLOGICAL DATA

9.1 Acute Toxicity

The acute toxicity studies have been conducted with the notified chemical in the powder form.

Table 1 Summary of acute toxicity of Phthalocyanine Turquoise JA 2398 (FAT 11'190/B)

Test Species Dose Outcome Reference

Oral	Rat	2000mg/kg	LD ₅₀ : >2000 mg/kg	5
Dermal	Rat	2000mg/kg	LD ₅₀ : >2000 mg/kg	6
Skin Irritation	Rabbit	0.5 g	non-irritant	7
Eye Irritation	Rabbit	0.1 g	slight irritant	8
Skin Sensitisation	Guinea pig	5% induction 25% challenge	weak-sensitiser	9

9.1.1 Oral Toxicity (5)

This limit test was performed according to the OECD Guidelines for Testing Chemicals, No. 401.

A single 2000 mg/kg dose of Phthalocyanine Turquoise JA 2398, in distilled water was administered by gavage to five male and five female rats. The animals were observed for 15 days. No deaths occurred during the study. Clinical symptoms observed in the animals included breathing rales in two rats. The rats recovered within three observation days. Body weight gain of the animals

was not affected by the treatment with the test article throughout the entire study period. Necropsy revealed no gross pathological changes.

Results of this study indicate an acute LD₅₀ of >2000 mg/kg in rats of both sexes for Phthalocyanine Turquoise JA 2398 (5).

9.1.2 Dermal Toxicity (6)

This limit test was performed according to the OECD Guidelines for Testing Chemicals, No. 402.

A single 2000mg/kg dose of Phthalocyanine Turquoise JA 2398, in distilled water was applied to the shaved backs of five male and five female rats and covered with a semi-occlusive dressing. Twenty-four hours after the application the dressing was removed. The treated skin was washed with water and dried. The animals were observed for 15 days. No deaths occurred during the study. Scales and blue discolouration of the back skin were observed in all the rats (male and female). The animals had recovered after 14 observation days, except two animals which showed scales until day 14. No systemic symptoms were observed. No macroscopic organ changes were observed at necropsy.

Results of this study indicate an acute dermal LD₅₀ of >2000 mg/kg in rats of both sexes for Phthalocyanine Turquoise JA 2398 (6).

9.1.3 Skin Irritation (7)

This study was carried out in accordance with the OECD Guidelines for Testing Chemicals, No. 404.

A single dose of 0.5 g of Phthalocyanine Turquoise JA 2398 (moistened with bi-distilled water) was applied to the intact skin of the shaved backs of three rabbits (two males and one female) under a semi-occlusive dressing. The duration of the treatment was four hours, after which the dressing was removed and the skin washed with water. The skin reaction was assessed at 1, 24, 48 and 72 hours post treatment. Blue discolouration of the treated skin was noted in all the animals. No signs of

erythema or oedema were observed. No corrosive effect was evident on the skin.

The results of this study indicate that Phthalocyanine Turquoise JA 2398 is not a skin irritant in rabbits at the concentration tested (7).

9.1.4 Eye Irritation (8)

This study was carried out in accordance with the OECD Guidelines for Testing Chemicals, No. 405.

The test material Phthalocyanine Turquoise JA 2398, 0.1 g, was placed in the conjunctival sac of the left eye of each of three rabbits (two males and one female). The right eye remained untreated and served as the reference control. The eyes of each animal were examined 1, 24, 48 and 72 hours after administration. Oedema was noted at one hour in all treated eyes. Erythema was noted in the treated eye of all the animals from 24 to 48 hours. In the area of application a slight blue staining of the cornea and conjunctivae was observed in all the animals. No corrosion of the cornea was observed.

The results of this study indicate that Phthalocyanine Turquoise JA 2398 is a slight eye irritant in rabbits at the concentration tested (8).

9.1.5 Skin Sensitisation (9)

This study was carried out in accordance with the OECD Guidelines for Testing Chemicals, No. 406, using the Guinea Pig Maximisation Test.

From a preliminary study, the following concentrations were chosen for the main sensitisation study; 5% Phthalocyanine Turquoise JA 2398 in saline for the intradermal injections and 25% Phthalocyanine Turquoise JA 2398 for the topical application. In the induction and challenge study, 30 guinea pigs (15 males and 15 females) were used of which 10 (5 males and 5 females) served as controls.

Induction

Two sets of three intradermal injections (0.1ml/site) were made to the clipped scapular area of 20 guinea pigs as follows:

- . Freund's complete adjuvant 50:50 with bi-distilled water;
- . Phthalocyanine Turquoise JA 2398 diluted to 5% with saline;
and
- . 5% concentration Phthalocyanine Turquoise JA 2398 emulsified in a 50:50 mixture of Freund's complete adjuvant and saline.

One week later, the same scapular area was shaved and a 25% concentration of Phthalocyanine Turquoise JA 2398 was applied under an occlusive dressing for 48 hours. The control groups were similarly treated, except for the omission of the test material.

Challenge

All animals were challenged two weeks after the topical induction application. A 25% concentration of Phthalocyanine Turquoise JA 2398 in saline was applied, under an occlusive dressing for 24 hours, to the left shaved flank of each guinea pig. Saline alone was applied to the other shaved flank. The sites were examined for signs of erythema and oedema immediately, and at 24 hours and 48 hours following removal of the dressing. No second challenge was performed, due to the unequivocal findings observed after the first challenge.

Slight erythema was noted in one (of 20) treated guinea pigs at 24 hours after the first challenge. No signs of oedema were observed in any of the test animals after the first challenge.

No systemic symptoms were observed during the study. The results were interpreted according to the rating of Magnusson and Kligman (10). No death occurred during the study and no necropsy was performed on the animals.

The results of this study indicate that Phthalocyanine Turquoise JA 2398 is a weak skin sensitiser in guinea pigs (9).

9.2 Five day oral toxicity (11)

Phthalocyanine Turquoise JA 2398 was administered daily by gavage to groups of six rats (three of each sex) for five days, at dose levels of 0, 200 and 1000 mg/kg. No treatment related deaths were observed during the study. Clinical signs of toxicity were noted in the high dose groups (1000 mg/kg) and included sedation and ruffled fur. At necropsy, bluish discolouration was noted in the stomach, duodenum, jejunum, ileum, caecum and colon of most of the males and females of the intermediate (200 mg/kg) and the high dose group (11).

From the results of this study, the dose levels for the 28-day oral toxicity study were set at 0, 50, 200 and 1000 mg/kg.

9.3 Twenty eight day Repeat-dose Oral Toxicity (12)

This study was carried out according to the OECD Guidelines for Testing Chemicals, No. 407.

In this repeat-dose oral toxicity study, Phthalocyanine Turquoise JA 2398 was administered daily by gavage to rats for 28 days. Four groups of male and female rats were administered 0 mg/kg (20 rats), 50 mg/kg (10 rats), 200 mg/kg (10 rats) or 1000 mg/kg (20 rats) of Phthalocyanine Turquoise JA 2398. After completion of the 28-day study, 10 rats from the control group (0 mg/kg) and 10 from the high dose group (1000 mg/kg) were observed for a further treatment-free 14 days. No deaths occurred during the treatment and recovery periods. During the treatment period, the faeces of treated animals were blue discolored, starting on treatment day two for the 1000 mg/kg group and on day six for the 50 mg/kg and 200 mg/kg groups. The blueish discolouration of faeces was a reversible effect and the animals returned to normal within six days of abstinence from the test material. No other treatment related clinical signs were observed.

9.4 Mutagenicity

Table 2 Summary of mutagenicity of Phthalocyanine Turquoise JA 2398 (FAT 11'190/B)

Test	Species	Dose Range	Outcome	Reference
Reverse Mutation	<i>Salmonella typhimurium</i>	10-5000 µg/plate	negative	13
<i>In vitro</i> Chromosome Aberration	Chinese Hamster	30-750 µg/ml	negative	14

9.4.1 *Salmonella typhimurium*, Reverse Mutation Assay (13)

This Ames test was carried out according to the OECD Guidelines for Testing Chemicals, No. 471.

Phthalocyanine Turquoise JA 2398 (FAT 11'190/B) at concentrations of 10, 100, 333.3, 1000 and 5000 µg/plate was tested in two independent experiments for gene mutation according to the direct plate incorporation method. *Salmonella typhimurium* strains TA 1535 and TA 100 were used to indicate base pair mutations, and TA 1537, TA 1538 and TA 98 to indicate frame-shift mutations. Untreated and solvent (water) plates were used as negative controls. The test plates and the negative control plates were performed both in the presence and absence of microsomal activation (S9 liver microsome mix). Positive controls included sodium azide and 4-nitro-o-phenylene-diamine, both without metabolic activation, and 2-aminoanthracene with metabolic activation. All tests were performed in triplicate.

No dose-related increase in the number of revertant colonies was observed in any of the strains exposed to Phthalocyanine Turquoise JA 2398 or in the negative controls, in the presence or absence of metabolic activation. In contrast, the positive controls showed marked increases in the number of revertant colonies.

The results of this experiment indicate that the notified chemical was non-mutagenic in *Salmonella typhimurium* under the conditions of the study (13).

9.4.2 *In vitro* Chromosome Aberration Assay (14)

This study was carried out according to the OECD Guidelines for Testing Chemicals, No. 473.

Chinese hamster V79 cells were exposed *in vitro* to Phthalocyanine Turquoise JA 2398 over a dose range of 0.03, 0.1, 0.3 to 1.5 mg/ml in the absence of exogenous metabolic activation and 0.1, 0

3 to 1.0 mg/ml in the presence of metabolic activation (S9 liver microsome mix). Cell samples were taken at 7, 18, and 28 hours after the start of treatment and assayed for structural chromosomal aberrations. The solvent (DMSO) was used as a negative control and ethylmethanesulfonate (without metabolic activation) and cyclophosphamide (with metabolic activation) as the positive controls. Assays were performed in duplicate. One hundred metaphase cells were scored for structural chromosomal aberrations per dose. At fixation interval 7 h, due to low metaphase number and precipitation of the test article during incubation time, an accurate evaluation of the metaphases was not possible. Therefore, a second experiment in a lower dose range was performed using 0.01 mg/ml dose without S9 mix and 0.03 mg/ml dose with S9 mix (experiment II).

In both experiments, the mitotic index was reduced after treatment with at least the highest concentration at each fixation interval in the absence of S9 mix. In the presence of S9 mix, at least a slight reduction was observed at fixation interval 7 h (exp. II) and 18 h (exp. I). There was no relevant increase in cells with structural aberrations after treatment with the test article at any fixation interval either without or with metabolic activation by S9 mix. Appropriate reference mutagens were used as positive controls and showed distinct increases in cells with structural chromosome aberrations.

The results of this study indicate that Phthalocyanine Turquoise JA 2398 did not induce structural chromosome aberrations in V79 Chinese hamster cells (14).

9.5 Overall Assessment of Toxicological Data

Phthalocyanine Turquoise JA 2398 has low oral toxicity (Oral LD₅₀ in rats: >2000 mg/kg) and low acute dermal toxicity (dermal LD₅₀ in rats: >2000 mg/kg). Tests in rabbits reveal that it is a moderate eye irritant but is non irritating to the skin. It has been found to be a weak skin sensitiser in guinea pigs.

Phthalocyanine Turquoise JA 2398 was found to be non-genotoxic in both the *Salmonella typhimurium* reverse mutation test and an *in-vitro* Chromosome Aberration Assay.

10. ASSESSMENT OF ENVIRONMENTAL EFFECTS

The following test results, obtained according to OECD Guidelines 201, 202 and 203 were provided for aquatic species.

Test Species Result

96 h exposure Zebrafish LC₅₀=11.2 mg.L⁻¹
(*Brachidanio rerio*)

Acute immobiliza. *Daphnia magna* 48 h EC₅₀=173 mg.L⁻¹

Algal biomass inhibition	<i>Scenedesmus subspicatus</i>	72 h Eb ₅₀ =15.6 mg.L ⁻¹
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Algal growth rate	"	72 h Eb ₅₀ >80.5 mg.L ⁻¹
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The above results indicate that Phthalocyanine Turquoise JA 2398 is practically nontoxic to aquatic invertebrates and slightly toxic to fish and algae. While a reproduction test for daphnids was not conducted, the lack of acute toxicity to the organism, the low predicted environmental concentrations and the probability that the dye will not undergo cellular absorption indicate that reproductive effects are unlikely to be observed.

The influence of the substance on the growth of the green alga supports finding that algal growth inhibition test on 56 dyestuffs show close parallels with fish toxicity (4). As all

test media to the lowest concentration used were coloured by the test substance, the observed algal growth inhibition effect of the substance may be due to a real toxic effect to algal cells or indirectly to reduce light intensity in the coloured test media.

Respiratory inhibition of microorganisms in activated sewage sludge was tested according to OECD Guidelines 209. The IC₅₀ (3h) exceeded the highest concentration tested (100mg.L⁻¹), indicating that the dye is practically nontoxic to microbes, as expected for a sulphonated compound which is unlikely to be adsorbed by microbial cells.

11. ASSESSMENT OF ENVIRONMENTAL HAZARD

The main hazard arising from the use of Phthalocyanine Turquoise JA 2398 will be associated with direct discharge from paper mills or release from sewage treatment works of unfixed residues into the aquatic environment. Due to its chemical stability and poor biodegradability, Phthalocyanine Turquoise JA 2398 is likely to retain its phthalocyanine structure upon release to the environment. If released to the ocean or to a river (unless low flow conditions prevail), dilution would be expected to swiftly reduce the environmental concentration to undetectable levels. In the longer term, residue would be expected to bind to sediment and may undergo slow biodegradation.

The notifier has provided two scenarios, light and dark paper colouration, of which the latter requires closer scrutiny. In addition, consideration should be given to the mode of discharge of effluent from the two paper mill sites, Shoalhaven - NSW and Fairfield - Victoria, where dark paper colouration processes will be undertaken.

The worst cases envisaged by the notifier would occur at the two sites producing dark coloured paper on 50 days of the year. Daily discharge to water bodies or release to sewage treatment works at the two sites is estimated to be 0.48 kg of the technical mixture.

In the case of the Shoalhaven site, assuming a 2 ML.day⁻¹ backwater outflow and a further dilution factor of 3 for other dye processes running simultaneously, the concentration of substance released to receiving waters would be approximately 80 ppb. Given that Shoalhaven river has a minimum flow of

100ML.day⁻¹, input from Tallowa Dam - (15) and is subject to diurnal tidal flushing for 15 km upstream from the paper mill site at Nowra, a further dilution of at least 50 would result in an environmental concentration of notified substance of less than 2 ppb.

At the Fairfield site, which utilises primary clarification and settling ponds to remove 80% of the substance from the effluent, a similar concentration of substance to receiving waters or 80 ppb is expected. The effluent is handled by the Melbourne Water Board (formerly MMBW) at the Werribee Sewage Treatment plant which treats an average 500 ML.⁻¹ effluent. A dilution factor of up to 250 would result in concentrations of substance below 1ppb.

In both scenarios, the predicted environmental concentration is expected to be at least 3 orders of magnitude lower than the concentrations causing acute effects to fish, in particular, indicating that adverse environmental effects should not occur.

The predicted environmental concentration of substances to the aquatic compartment after light paper colouration processes is likely to be at least an order of magnitude lower.

Whether the notified substance passes through the sewage treatment works without being removed or is partially removed as assumed by the company, the concentrations reaching the environment should remain below 2 ppb, a level that is unlikely to present a hazard to the environment based on the ecotoxicity data submitted.

12. ASSESSMENT OF PUBLIC AND OCCUPATIONAL HEALTH AND SAFETY

Phthalocyanine Turquoise JA 2398 is a slight eye irritant and a weak skin sensitizer in animals. The most likely mode of exposure is by skin or by eye contact after splash or a spill. Therefore skin and eye contact should be avoided and the recommendations under Section 13 should be followed to minimise exposure.

Due to low public and infrequent occupational exposure, it is unlikely that the notified chemical will pose any serious health or safety hazard to the public and workers.

13. RECOMMENDATIONS FOR THE CONTROL OF PUBLIC AND WORKER EXPOSURE

To minimise public and worker exposure to Phthalocyanine Turquoise JA 2398 the following guidelines and precautions should be observed:

- suitable personal protective equipment which comply with Australian Standards (AS) should be worn while handling the notified chemical, such as:
 - safety glasses (AS 1337) - *Eye protectors for Industrial Applications* (16);
 - impervious elbow length gloves (AS 2161) - *Industrial Safety Gloves and Mittens (excluding Electrical and Medical Gloves)* (17);
 - appropriate impervious protective clothing (AS 3765) - *Clothing for protection against Hazardous Chemicals* (18);
- good work practices should be implemented to avoid splashings or spillages during formulating and using products;
- good housekeeping and maintenance should be practised. Spillages should be cleaned up promptly using absorbents;
- a copy of the Material Safety Data Sheet (MSDS) for the notified chemical and for products containing the notified chemical should be easily accessible to employees.

14. MATERIAL SAFETY DATA SHEET(S)

The Material Safety Data Sheets (MSDSs) for Phthalocyanine Turquoise JA 2398 and Pergasol Turquoise F-2GN has been compiled according to Worksafe Australia format (19). These MSDSs was provided by CIBA GEIGY Ltd as part of their notification statement. They are reproduced here as a matter of public record. The accuracy of this information remains the responsibility of CIBA GEIGY Ltd.

15. REQUIREMENTS FOR SECONDARY NOTIFICATION

Under the *Industrial Chemicals (Notification and Assessment) Act 1989* (the Act), secondary notification of Phthalocyanine Turquoise JA 2398 shall be required if any of the circumstances stipulated under subsection 64(2) of the Act arise.

16. REFERENCES

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