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NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME

FULL PUBLIC REPORT

IRGAZIN DPP Scarlet EK

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Director
Chemicals Notification and Assessment

FULL PUBLIC REPORT

IRGAZIN DPP Scarlet EK

1. APPLICANT

Ciba-Geigy Australia Ltd, 140 Bungaree Road, Pendle Hill NSW 2145.

2. IDENTITY OF THE CHEMICAL

Based on the nature of the chemical and the data provided, IRGAZIN DPP Scarlet EK, is considered to be non-hazardous. Therefore, the chemical name, CAS number, molecular formula, structural formula, molecular weight and spectral data have been exempted from publication in the Full Public Report and the Summary Report.

Trade names: IRGAZIN DPP Scarlet EK (99% pure)DPP Red 5G (96% pure)11625 (96% pure)Red 3067CRed 3067EKRed 255

3. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa: red powder

Odour: none

Melting Point: >300°C

Boiling Point: not determined as the chemical is a solid with a high melting point

Density: 1420 kg/m^3 @ 20°C

Vapour Pressure: not measured due to the high melting point of the chemical

Water Solubility:	<0.7 mg/L at 20°C
Fat Solubility:	0.1 g/1000g fat @ 37°C
Dissociation Constant pKa:	not determined, chemical does not dissociate in water
Partition Co-efficient (n-octanol/water) log $P_{O/W}$:	1.6 (calculated)
Flash Point:	not determined as the chemical is a solid with a high melting point
Flammability Limits:	non-flammable
Autoignition Temperature:	400°C
Explosive Properties:	not explosive when subjected to flame, shock or friction
Reactivity/Stability:	the chemical has no oxidising properties and no chemical incompatibilities are known

Particle size distribution: median: 1.1 µm

Comments on physico-chemical data:

Tests were carried out following either OECD or EEC Guidelines in all cases.

Both boiling point and vapour pressure were not determined due to the high melting point, which precluded tests being conducted. This is acceptable.

As the test substance was of very low solubility in water, hydrolysis as a function of pH could not be determined. This is acceptable, as the pigment contains no functionalities likely to hydrolyse under environmental conditions.

The partition coefficient was determined using the OECD Guideline "Partition Coefficient calculated from Fragment Constants", as the substance does not readily dissolve in either water or n-octanol. Thus, both the shake flask method and the TLC/HPLC methods were unsuitable. Such a variation is acceptable. However, the result seems rather low in view of the extremely low water solubility.

Adsorption/desorption tests were not performed, due to the low solubility of the pigment in water. This is acceptable, as release of free pigment to soils is low. Strong sorption of the pigment may be expected.

4. PURITY OF THE CHEMICAL

There are no impurities present above the cut-off concentration for classifying the notified chemical as a hazardous substance (1). Therefore, details on the purity of IRGAZIN DPP Scarlet EK have been exempted from publication in the Full Public Report and the Summary Report.

5. INDUSTRIAL USE

IRGAZIN DPP Scarlet EK will be imported into Australia. Its principle use (>95%) will be as a component of surface coatings, including formulated automotive paints and tinting pastes for decorative paints (house paints). It may also find applications as a colourant for plastics, specialty printing inks or synthetic fibres. The import volume will be greater than 1 tonne per year for the first five years.

6. OCCUPATIONAL EXPOSURE

Paint manufacture

IRGAZIN DPP Scarlet EK powder will be imported in cardboard boxes with antistatic polyethylene liners (~25 kg/box) and distributed by road to industrial establishments throughout Australia for incorporation into paint products. Exposure during transportation will result only in the event of accidental spills or mishandling.

The primary source of IRGAZIN DPP Scarlet EK exposure at the paint manufacturing plants will be to powder mists during weighing and batching operations. The number of employees potentially exposed to IRGAZIN DPP Scarlet EK during paint manufacture will be ~64 (6 plant operators and 2 laboratory technicians per establishment). Workers will weigh out the powdered product and add it to a blending vessel approximately once every 3-4 months. The blending vessel will be charged with liquid resin and other ingredients, to which powdered IRGAZIN DPP Scarlet EK will be slowly added.

The notifier has indicated that the blending operation will not usually be conducted in a closed system, however local exhaust ventilation will be employed by most establishments. Additionally, as the notified pigment is expensive, attempts will be made to minimise waste wherever possible. Once the notified chemical has been incorporated into the resin solution, the liquid form of IRGAZIN DPP Scarlet EK will be the major source of worker exposure.

From the blending vessel, the solution will be pumped through bead mills (sealed) to disperse the pigment and later returned to blending vessels for further blending with other pigments, solvents and resin to form the final product. The notified chemical will constitute ~8% of formulated automotive paints and ~1-2% of decorative paints.

Automotive paints will be used by a number of automotive factories as well as vehicle refinishers. To prevent exposure, workers at the automotive factories and most car repairers will apply the paint with automatic spray equipment in a spray booth and wear suitable personal protective equipment.

House paints will be used by the public as well as by painters and decorators.

Once the paint has cured, the notified chemical will not be a source of exposure.

Other applications

It is envisaged that the notified chemical may be used in polypropylene plastics requiring high fastness (typical final concentrations 0.1-0.2%), as well as in printing of signs, posters, or PVC films (typical final concentrations 1-2 g/m^2).

Given the relatively small volumes of notified chemical proposed for these applications, the number of workers and the extent of worker exposure for these applications will be low.

7. PUBLIC EXPOSURE

Public exposure is not expected to occur during storage and distribution of the notified chemical. Exposure during paint formulation is also expected to be minimal as the notified chemical has very low volatility (based on the high melting point: >300°C) and therefore should not escape from the reformulation equipment.

Industrial usage is unlikely to result in significant public exposure, as the application of the paint will be conducted under controlled conditions, and minimal waste is anticipated (estimated to be less than 0.1 kg/vehicle). Any overspray (estimated to be <15%) from spray booths is expected to be scrubbed prior to release to the atmosphere and public exposure is expected to be minimal.

While non-industrial usage of paints containing the notified chemical may be extensive, the type of application methods used (typically brush or roller) and the low volatility of the notified chemical will result in low inhalational exposure levels. While dermal exposure to the notified chemical may occur during non-industrial usage, the low fat solubility (0.1 g/1000g fat @ 37°C) suggests that dermal absorption is unlikely to occur.

Disposal of any waste chemical will be by incineration and landfill, and is not expected to result in significant public exposure.

Public exposure to the notified chemical as a result of contact with painted products is not expected to occur as the notified chemical is expected to remain encapsulated within polymer matrices of surface coatings.

8. ENVIRONMENTAL EXPOSURE

. Release

The pigment will be used in a small number of factories to manufacture paints. It will be incorporated into the paint, embedded and encapsulated in a resin. The major release expected during these processes would mainly occur during the batching and weighing operations. The company estimates that less than 1 kg per year will be released to the environment. Dust collectors/air filters are expected to limit air contamination, whilst filtration and sedimentation is expected to reduce releases into waterways.

The main forms of release of the pigment after paint manufacture are expected to be during application of the paint or when the painted article is discarded as waste.

When the pigment is used as an automotive finish for new vehicles, the company estimates that less than 15% of the paint will be lost as overspray. Electrostatic methods will be used to apply the paint to car bodies.

As these paints often contain a high percentage of solvents (approximately 50%), the air is routinely scrubbed prior to release to the environment. Less than 0.06 kg of the new pigment is expected to be captured in this way and disposed of to landfill.

When cars are being resprayed, during repair, wastage rates may rise to 50%. The company estimates therefore that less than 0.1 kg of the pigment per repaired vehicle would be produced as waste, and disposed of to land fill.

Disposal of painted metal objects to landfill, or by incineration is also expected to release a small amount of the pigment. The low solubility of the chemical should result in a very small amount of the pigment leaching into the environment. The company assumes that less than 2 kg of coating is typically used on a motor car, containing less than 0.16 kg of the new chemical.

Weathering of the paint is another possible avenue for release. However, as surface coating are designed to resist weathering, only slight amounts of the pigment are expected to result from this source. As only 0.16 kg of the pigment will be contained in

top-coatings of vehicles, the source is considered by the company to be very "small and insignificant".

When the pigment is used in decorative paints, it is expected to be present in concentrations of less than 1-2% of the formulated paint product.

The company has estimated that the only wastes to be generated by brush and/or roller application of the paints will be the result of clean-up procedures. The type of paint will determine whether clean-up will involve cleaning solvents or water.

Use of solvents for clean-up is expected to generate 1-2 g of wastes for disposal per paint job. Although the company states that solvents and associated wastes will be either burnt or disposed of to landfill, the former option does not seem likely. In general solvents are often disposed of by pouring into the sewers. The same release would be expected for water clean-up of paints, and thus an estimated 2-4 g of paint waste from both sources would be expected to enter the sewers directly, following paint application.

Painted articles would either be burnt or placed in landfill at the end of their useful life. Leaching is not expected to result from this form of disposal due to the low solubility of the paint. Burning of painted articles is claimed to represent no danger to the environment because of the composition of the paint.

Weathering is expected to yield a very small, insignificant and gradual amount of the pigment. The company estimates that for a typical 14-16 m^2 area covered per litre of paint, less than 1.5 g of the pigment would be contained per metre of painted surface.

Use of the pigment in other applications (eg. plastics colourations and printing inks) is expected to be relatively low. The company provides no estimates of wastes produced by these processes, but claims that similar amounts would be expected to those produced by paint uses as above.

. **Fate**

The bulk of the pigment will be chemically bound to painted surfaces and in this state is not expected to impact on the environment. Spillage during transport, or from plants during

formulation into various paint products, is possible and could pose a risk to the environment. Water colouration could occur, but the pigment is most likely to sorb to sediments.

Biodegradation

Biodegradation was assessed using the OECD Guideline No. 301B (the modified Sturm Test). The substance exhibited 12% degradation after 28 days, indicating that it is not readily biodegradable under the conditions of the test. However, it is noted that the substance is virtually insoluble and therefore the test conditions were not adequately met for this method.

Hydrolysis

The hydrolysis of IRGAZIN DPP was not investigated because of the very low water solubility (< 0.07 mg/L). There are no functionalities likely to hydrolyse under environmental conditions.

Bioaccumulation

The biodegradation potential of the pigment was not investigated because of the very low partition coefficient (log P_{OW} = 1.6) and lipid solubility (< 0.1 g/kg). These factors, and the large molecule size of the pigment when incorporated into paints, should limit bioaccumulation potential (2).

Chemical Oxygen Demand

The chemical oxygen demand (COD) was calculated on the basis of the amount of test substance and consumption of potassium dichromate. The pigment was found to have a COD of 2.06 g COD per gram of pigment.

9. EVALUATION OF TOXICOLOGICAL DATA

9.1 Acute Toxicity

Table 1 Summary of the acute toxicity of IRGAZIN DPP Scarlet EK

Test	Species	Outcome	Reference
Oral	Rat	LD_{50} >5000 mg/kg	3
Dermal	Rat	LD_{50} >2000 mg/kg	4
Skin	Rabbit	non-irritant	5
Eye	Rabbit	non-irritant	6
Skin	Guinea pig	non-sensitising	7

9.1.1 Oral Toxicity (3)

This study was conducted in accordance with OECD guideline No: 401 (8).

IRGAZIN DPP Red 5G was administered to 10 KFM-Han. Wistar rats (5/sex) by oral gavage, at a single dose of 5000 mg/kg in polyethylene glycol (20 ml/animal). Clinical observations were made over a 15-day period. No deaths occurred during the observation period. All rats were sacrificed on day 15 and necropsy performed. Bodyweight gains of the treated animals were unaffected by treatment. Clinical observations included dyspnea, sedation, rales, curved body position and ruffled fur as well as red discoloured extremities. Skin discolouration disappeared by day 3 and was attributed to the presence of the test agent. All other clinical signs disappeared by day 2. Necropsy on sacrificed animals revealed no significant macroscopic legions.

Results of this study indicate an acute oral LD_{50} of >5000 kg/mg in rats of both sexes for IRGAZIN DPP Red 5G.

9.1.2 Dermal Toxicity (4)

This study was conducted in accordance with OECD guideline No: 402 (9).

A single dose of 4 ml IRGAZIN DPP Scarlet EK in polyethylene glycol at 2000 mg/kg was applied to the clipped backs of 10 KFM-Han. Wistar rats (5/sex) and covered with an occlusive dressing. Twenty-four hours later the dressing was removed and the test site washed with lukewarm tap water and dried with paper towelling. Clinical observations were made over a 15 day period (4 times during day one and daily thereafter). No deaths occurred during the observation period. No clinical signs of toxicity were observed. The treated skin of all animals was discoloured red by the test agent during the observation period. All rats were sacrificed on day 15 and necropsy performed. Bodyweight gains of the treated animals were unaffected. Necropsy on sacrificed animals revealed no significant macroscopic legions.

Results of this study indicate an acute dermal LD_{50} of >2000 kg/mg in rats of both sexes for IRGAZIN DPP Scarlet EK.

9.1.3 Inhalation Toxicity

An acute inhalation toxicity study was not conducted.

9.1.4 Skin Irritation (5)

This study was conducted in accordance with OECD guideline No: 404 (10).

A single dose of 0.5 g IRGAZIN DPP Scarlet EK (moistened with polyethylene glycol) was applied occlusively to the closely-clipped dorsa of 3 New Zealand white rabbits (1 male and 2 females). Four hours later the dressings were removed and the test site washed with lukewarm tap water. Skin reactions were assessed 1, 24, 48 and 72 hours after dressing removal. No clinical symptoms or mortality were observed in the animals during the 72 hour observation period. Bodyweight gains of the treated animals were unaffected. No evidence of erythema or oedema was apparent in any of the animals during the 72 hour observation period. No corrosive effects occurred on the skin of any of the animals. It should be noted that the test site of all animals was stained orange by the test compound pigment, indicating that some effects may have been masked.

Results of this study indicate that IRGAZIN DPP Scarlet EK is not a skin irritant in rabbits.

9.1.5 Eye Irritation (6)

This study was conducted in accordance with OECD guideline No: 405 (11).

A single dose of 0.1 g of test substance was instilled in the conjuctival sac of the left eye of each of 3 New Zealand white rabbits (1 male, 2 females). The right eye served as the control. The eyes were examined 1, 24, 48 and 72 hours after treatment. No signs of corneal opacity, iridic effects or conjunctival effects were apparent in the eyes of any of the animals. There was no staining by the test article of either the cornea or the conjunctivae. No deaths occurred and no clinical symptoms were observed during the study. Necropsy was not performed on these animals.

The results of this study suggest that IRGAZIN DPP Scarlet EK is not an eye irritant in rabbits.

9.1.6 Skin Sensitisation (7)

This study was conducted in accordance with OECD guideline No: 406 (12).

In a preliminary study, 24 hours occlusive application with 10% IRGAZIN DPP Scarlet EK in Vaseline induced mild irritation in albino guinea pigs. Therefore, a concentration of 10% was chosen for topical application and 1% for intradermal application in the following study. A maximal subirritation concentration of 3% was chosen for the challenge application.

The Magnusson-Kligman Maximisation Test was used. Test animals were albino guinea pigs.

Induction

On day 1, 20 test animals (10/sex) were injected intradermally (on a 2 x 4 cm clipped area of the neck area) with 0.1 ml Freund's Complete Adjuvant diluted 1:1 with sesame oil (50:50 FCA), 1% w/v IRGAZIN DPP Scarlet EK in sesame oil and 1% w/v IRGAZIN DPP Scarlet EK in 1:1 FCA. Similar injections were made in the control animals (10 male, 20 female) however test material was excluded.

On day 7, a filter paper patch covered with a thin film of test substance (~0.5 g paste of 10% IRGAZIN DPP Scarlet EK in Vaseline) was placed over the injection sites of the test animals and covered with a dressing for 48 hours. The control animals were treated as above with the omission of test substance. Skin reactions were not assessed after induction.

Challenge

Two weeks after the epidermal induction application, a 2 x 2 cm filter paper patch coated with test substance (~0.2 g paste of 3% IRGAZIN DPP Scarlet EK in Vaseline) was placed on the flank (side not specified) of all test and 10 female control animals. The remaining control animals were given vehicle alone. The patches were occluded for 24 hours. Sensitisation reactions were assessed by the Draize method 24 and 48 hours after patch removal.

IRGAZIN DPP Scarlet EK caused no positive erythema or oedema in any of the animals at both the 24 and 48 hours observations. No reactions were observed with Vaseline alone.

The results of this study suggest that IRGAZIN DPP Scarlet EK is not a skin sensitiser in guinea-pigs.

9.2 Repeated Dose Toxicity (13)

A 28-day oral toxicity study was conducted in accordance with OECD guideline No: 407 (14).

The dose levels used in this study were based on findings in the acute oral and dermal toxicity studies discussed earlier (references 1 and 2 respectively) as well as the findings from a 28-day oral toxicity study using a related substance.

IRGAZIN DPP Scarlet EK in polyethylene glycol (10 ml/kg) was administered daily by gavage to Wistar Han. rats at 0 (control group), 100, 300 or 1000 mg/kg/day for 28 days. A total of 40 rats were used for the toxicity test (5 of each sex/dose). Rats in the low and mid dose groups were treated for an additional 2 days as they were inadvertently dosed incorrectly on days 1 and 2 (40 and 200 mg/kg instead of 100 and 300 mg/kg respectively).

All animals survived to scheduled necropsy and there were no significant body weight, food consumption or ophthalmic changes during the study. All control animals showed slight diarrhoea from day 19 until study termination. The treated animals showed no clinical signs during the study period.

No treatment-related changes in serum biochemistries were apparent at the termination of the study. Haematology and urinalysis also revealed no toxicologically significant changes.

Pathology revealed no significant differences in absolute and relative organ weights between treated and control animals.

Histopathology revealed no treatment-related findings.

Under the conditions of this study IRGAZIN DPP Scarlet EK exhibited no apparent toxicity in the rat after 28-day oral administration.

9.3 Genotoxicity

9.3.1 Salmonella typhimurium Reverse Mutation Assay (15)

This study was conducted in accordance with OECD guideline No: 471 (16) with the exception of statistical analysis.

IRGAZIN DPP Scarlet EK was tested in a *Salmonella typhimurium* reverse mutation assay using the plate incorporation procedure in the test strains TA 98, TA 100, TA 102, TA 1535 and TA 1537, with or without metabolic activation.

Two experiments were conducted, each in triplicate. All strains were tested with IRGAZIN DPP Scarlet EK in dimethylsulfoxide at concentrations of 0, 20, 78, 313, 1250 or 5000 µg/plate. The reference mutagens daunorubicin-HCl (TA 98; - S9), 4-nitroquinoline-N-oxide (TA 100; - S9), mitomycin-C (TA 102; - S9), sodium azide (TA 1535; - S9),
-(5) aminoacridine hydrochloride monohydrate (TA 1537; - S9), 2-aminoanthracene (TA 98, TA 100, TA 102 and TA 1537; + S9) and cyclophosphamide (TA 1537; + S9) were used as positive controls.

No increases in the revertant colony number were observed in any of the strains in the presence or absence of metabolic activation.

Under the experimental conditions reported, IRGAZIN DPP Scarlet EK was not mutagenic.

9.3.2 Micronucleus Assay in the Bone Marrow Cells of the Hamster (17)

This study was conducted in accordance with OECD guideline No: 474 (18).

Three groups of 16 Chinese hamsters (8/sex) were given a single dose of 5000 mg/kg IRGAZIN DPP Scarlet EK 20 ml/kg in sodium carboxymethylcellulose). An equal number of control animals were given vehicle alone. Bone marrow cells were collected and examined for micronuclei from each group at either 16, 24 or 48 hours after treatment. Positive control animals (8/ sex) were given the reference mutagen cyclophosphamide and were sacrificed 24 hours later.

One thousand polychromatic erythrocytes (PCE) were scored per animal, and the number of micronucleated PCEs recorded. The frequency of micronucleated cells was expressed as percent of total PCEs scored per animal. Cytotoxic effects were described by the ratio of PCE to normochromatic erythrocytes (NCE) in a total of 1000 erythrocytes for each animal.

No significant enhancement of micronucleus frequency was noted at any time point after treatment with IRGAZIN DPP Scarlet EK when compared to the control. Cyclophosphamide, however, produced a marked increase in micronucleus frequency (frequencies of 2.37 and 0.06 for positive and negative controls respectively).

The results of this study indicate that IRGAZIN DPP Scarlet EK does not cause chromosomal damage *in vivo*.

9.4 Overall Assessment of Toxicological Data

Animal tests suggest that IRGAZIN DPP Scarlet EK has low acute oral and dermal toxicity (respective rat LD50s >5000 and >2000 mg/kg). It is non-irritating to the skin or eyes of rabbits, and is not a skin sensitiser in guinea pigs. An acute inhalation toxicity study was not conducted. After 28 days of oral

administration with IRGAZIN DPP Scarlet EK, at a concentration of 1000 mg/kg/day, no treatment-related effects were observed.

Genotoxicity studies indicate that the chemical does not cause point mutations in *Salmonella typhimurium* and is not clastogenic *in vivo* in the hamster.

10. ASSESSMENT OF ENVIRONMENTAL EFFECTS

All toxicology tests were conducted following the relevant OECD Guidelines and EEC Directives.

Test	Species	Result
Acute (96 hour) (using nominal concentrations)	*Brachydanio rerio* (Zebra fish)	LC_0 > 100 mg/L LC_{50} > 100 mg/L LC_{100} > 100 mg/L
Acute Immobilisation (using nominal concentrations)	*Daphnia magna*	EC_0 > 100 mg/L EC_{50} > 100 mg/L EC_{100} > 100 mg/L

Results of the aquatic toxicity tests are based on nominal concentrations of the pigment, with much of the pigment settling out onto the bottom of the test aquaria with time. Stock solutions were not made up for the tests, rather the pigment was added directly to aquaria. Thus, the exact concentration to which aquatic organisms were exposed is unclear. Aquatic toxicity tests indicate that the pigment is unlikely to be toxic to aquatic fauna, up to the limit of solubility in water.

No *Daphnia* reproduction tests were conducted. This is acceptable, given the generally low expected environmental exposure.

The company has indicated that the algal tests were not performed because they were not required for EEC notification, and because colouration of the water by the pigment would interfere with light intensity available for the algae, and therefore the test may not reflect algal toxicity *per se*. This is acceptable.

11. ASSESSMENT OF ENVIRONMENTAL HAZARD

The low environmental exposure of the chemical as a result of normal use indicates that the overall environmental hazard should be low. Spillage during transport, or from plants during formulation into various paint products, is possible. However, given the low solubility and the low toxicity to both fish and *Daphnia* such spills should not represent a hazard to the environment. Colouration of the water may occur, but the pigment would be most likely to sorb to the sediments.

It is assumed that up to 8 kg per year will be released to the environment (either air or water) as a result of paint manufacture at all the sites. All of this is expected to be placed in landfill, after capture by either scrubbing (air) or filtration (water).

After application to car bodies, the amount of waste sent to landfill could be assumed to be as high as 50% of all paint formulated in any one year. Given the very low solubility of the pigment and its encapsulation within the paint matrix, virtually none of this should leach to waterways.

Clean-up operations after decorative paint use will result in exposure of waterways to the pigment when wastes are disposed of to the sewers. It is not anticipated that clean-up solvents will be burnt as a matter of course, as is assumed in the submission. The estimated concentration of pigment in the waterways is 37 ppt. This amount is far below the estimated LC_{50} for both fish and *Daphnia*, and therefore disposal of wastes generated from decorative paints should not pose a hazard to aquatic organisms.

12. ASSESSMENT OF PUBLIC AND OCCUPATIONAL HEALTH AND SAFETY EFFECTS

Animal tests with IRGAZIN DPP Scarlet EK have shown low systemic toxicity, no irritant effects in eyes and no irritant or sensitising effects in skin.

At room temperature, IRGAZIN DPP Scarlet EK is a powder with <1% impurities. It is combustible but not flammable. Dust clouds may result from finely particulated pigment, which may be an explosion risk. Moreover, the particle size of the powder is within the respirable range (median: 1.1 µm) therefore

inhalational exposure is possible. However, given the relatively benign toxicological profile and control measures which will minimise respiratory exposure it is unlikely to pose a significant health risk.

Under normal use conditions, workers involved in reformulating the notified chemical, as well as workers using finished products containing the notified chemical, will be required to use appropriate engineering controls and personal protective equipment to minimise exposure to solvents in the formulations. As a consequence, occupational exposure to the notified chemical should be minimal.

Public exposure is expected to be low and there should be negligible risk to public safety.

13. RECOMMENDATIONS

To minimise occupational exposure (and public/environmental if recommendations have been made by these agencies) to IRGAZIN DPP Scarlet EK the following guidelines and precautions should be observed:

. As the median particle size (1.1 µm) is within the respirable range, good work practices should be adopted to avoid the generation of dust, and engineering controls (such as local exhaust ventilation and enclosed systems) should be implemented.

. If engineering controls and work practices are insufficient to reduce exposure to a safe level, the following personal protective equipment should be used:

    . respirator conforming to AS 1715 (19) and AS 1716 (20);

    . safety spectacles with side shields or other suitable eye protection conforming to Australian Standards 1336 (21) and 1337 (22);

    . impervious gloves conforming to Australian Standard 2161 (23); and

. protective clothing conforming to Australian Standards 3765.1 (24) or 3765.2 (25).

. The Australian exposure standard for nuisance dusts should be observed:

TWA 10 mg/m^3, inspirable (26)

. Spills should be cleaned up promptly.

. Good personal hygiene practices, such as washing of hands prior to eating food, should be observed.

. A copy of the MSDS for products containing the notified chemical should be easily accessible to all employees.

14. MATERIAL SAFETY DATA SHEET

The Material Safety Data Sheet (MSDS) for IRGAZIN DPP Scarlet EK (Attachment 1) was provided in Worksafe Australia format (27). The MSDS was provided by Ciba-Geigy Australia 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 Ciba-Geigy Australia Ltd.

15. REQUIREMENTS FOR SECONDARY NOTIFICATION

Under the *Industrial Chemicals (Notification and Assessment) Act 1989*, secondary notification of IRGAZIN DPP Scarlet EK 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

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3. RCC Project 062190, Ciba-Geigy Project 85 1229. *Acute Oral Toxicity Study with TK 11625 in Rats*. Research and Consulting Company AG, 1986.

4. RCC Project 062223, Ciba-Geigy Project 85 1232. *Acute Dermal Toxicity Study with TK 11625 in Rats*. Research and Consulting Company AG, 1986.

5. RCC Project 062212, Ciba-Geigy Project 85 1231. *Primary Skin Irritation Study with TK 11625 in Rabbits (4 Hour Occlusive Application)*. Research and Consulting Company AG, 1986.

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7. GU Project No. 85 1234. *TK 11625: Skin Sensitisation Test in the Guinea Pig (Maximization)*. Ciba-Geigy Ltd, 1986.

8. OECD Guidelines for Testing of chemicals - *Acute Oral Toxicity* No: 401, 1981.

9. OECD Guidelines for Testing of chemicals - *Acute Dermal Toxicity* No: 402, 1981.

10. OECD Guidelines for Testing of Chemicals - *Acute Dermal Irritation/Corrosion* No: 404, 1981.

11. OECD Guidelines for Testing of chemicals - *Acute Eye Irritation/Corrosion* No:405, 1987.

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