

Products(s): Cadmium Colours (All Shades)

1. Identification of the substance / mixture and of the company / undertaking

1.1 Product identifier

This data sheet covers all pigments labelled with a “CADMIUM PIGMENT” good practice safety label.

1.2 Relevant identified uses of the mixture or substance and uses advised against

Uses: pigment for use in plastics, artists’ colours, paints, colouring material for use in ceramics and glass.

Certain uses are subject to restrictions or are not permitted in the EU - please see section 15.

Uses advised against: tattoo inks, cosmetics, all medical-related applications

1.3 Details of the supplier of the safety data sheet

Michael Harding Art Formulas Ltd, Unit K Springvale Ind Est, Cwmbran, Torfaen, NP44 5BE

Telephone: +44(0)1633484700

E-mail support: accounts@michaelharding.co.uk

1.4 Emergency telephone number

Telephone support is available in English at the number in section 1.3 between 08:30 and 17:00 Monday - Friday (UK time) only.

The UK national poisons emergency telephone number is 0870 600 6266 (any time) - please note that this service is only available to health professionals. The Irish national poisons emergency telephone numbers are 01 8092566 & 01 8379964 (any time) - this service is also only available to health professionals.

2. Hazards identification

Cadmium pigments are much less hazardous than other cadmium compounds as they are extremely insoluble: this greatly reduces the risk of absorption of cadmium into the body and also greatly reduces their environmental hazard.

2.1 Classification of the substance or mixture

Not classified as hazardous - please see section 3.

2.2 Label elements - not applicable

2.3 Other hazards

These products contain no PBT or vPvB substance or anything listed on the “candidate list”. They contain no persistent organic pollutants or anything capable of causing damage to the ozone layer.

These products do not offer any dust explosion hazard

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3. Composition / information on ingredients

3.1 Substances – these products do not fall within this definition

3.2 Mixtures

The substances listed below are present in the product(s) as they meet one or more of the following criteria:

- they are classed as hazardous and are present at or above the relevant declaration level
- they are covered by an exposure limit in the United Kingdom
- they otherwise affect the classification of the product

Substances present		EC / CAS Nos. / registration number	Classification - GHS systems	Comments
a)	cadmium sulphoselenide red (CI Pigment Red 108)	261-218-1 58339-34-7 01-2119981636-24-0001	not classified as hazardous - please see note 1 below	25 - 100 % in total
b)	cadmium sulphoselenide orange (CI Pigment Orange 20)	235-758-3 12656-57-4 01-2119981636-24-0001		
c)	cadmium zinc sulphide yellow (CI Pigment Yellow 35)	232-466-8 8048-07-5 01-2119981639-18-0001		
d)	barium sulphate (CI Pigment White 21)	231-784-4 7727-43-7 01-2119491274-35-xxxx	not classed as hazardous	0 - 75 % note 2

Substances a) and b) have the same basis chemical structure and have been covered in a single registration dossier.

Note 1: these substances are specifically excluded from the specific classification and labelling entries in the GHS tables covering cadmium compounds. A risk assessment of these products conducted by the EU concluded that these products offer no significant hazard to either human health or to the environment. REACH registration has confirmed that no hazard classifications apply – either for human health or to the environment.

Note 2: this constituent is present in extended (reduced-strength) pigments. As permitted under REACH, we have provided a ‘cloaked’ registration number here: we will provide the full registration number to regulatory authorities on request.

3.2.2 No substance classed as PBT or vPvB according to Annex XIII of REACH or included on the “candidate list” according to Annex XV of REACH is present in any of these products at or above the 0.1 % declaration threshold.

4. First aid measures

4.1 Description of first aid measures

Remove affected person from the area to a safe area with fresh air, taking care not to endanger your own safety while doing so.

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Eye contact - check for, and remove, any contact lenses. Wash the affected eye(s) with plenty of clean water for at least 10 minutes. If redness or soreness should develop, seek medical attention.

Skin contact - wash affected skin with plenty of soap and water. If redness or soreness should develop, seek medical advice. Remove contaminated clothing and wash before reuse.

Ingestion - never induce vomiting if the affected person is unconscious. Keep the affected person warm and seek medical advice, showing this data sheet.

Inhalation - in case of gross exposure, keep the affected person warm and seek medical advice, showing this data sheet.

4.2 Most important symptoms and effects, both acute and delayed

Eyes - possible soreness and irritation, related mainly to physical irritation,

Skin - no symptoms likely from these products alone

Inhalation - dryness of mouth and throat, coughing.

Ingestion - slight irritation of mouth and throat.

4.3 Indication of any immediate medical attention and special treatment needed

In the case of major inhalation or ingestion, medical personnel are advised to immediately contact the relevant national poison centre for specialist advice - see section 1.4

5. Firefighting measures

5.1 Extinguishing media

These products are not flammable - use media compatible with the surroundings.

5.2 Special hazards arising from the substance or mixture

If involved in a fire, these products may decompose to produce hazardous fumes (cadmium oxide, selenium dioxide) and gases (sulphur dioxide).

Keep members of the public away from the area and upwind of the fire.

Collect all fire-control water for later treatment and safe disposal: do not allow it to enter drains or watercourses. Should this happen, see section 12.

5.3 Advice for firefighters

Firefighters should wear boots, overalls, gloves and eye protection. Due to the possibility of formation of toxic breakdown products if these products are involved in a fire, self-contained breathing apparatus should be worn.

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6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Clear the affected area of unnecessary personnel.
Wear eye protection, overalls and impervious gloves.

In the case of a small spillage a type P1 (or better) CE-badged dust mask should be worn. In the case of a major spillage, P3 dust protection or a self-contained breathing apparatus should be worn.

Remove contaminated protective equipment and shower after the spillage has been dealt with.

6.2 Environmental precautions

Do not allow spilled material to contaminate soil or to enter watercourses, drains or sewers. If this should happen, alert the appropriate authorities and provide them with a copy of this document.

6.3 Methods and material for containment and cleaning up

If possible, cover nearby drains to prevent possible entry of spilled material.

DAMP down spilled material to reduce dust production - do not use excessive water.

Shovel up spilled material, transfer to plastic containers and seal.

Material may also be collected using vacuum cleaning - provided that the equipment is fitted with high-efficiency collection filters.

6.4 Reference to other sections

Dispose of collected material as under section 13,

7. Handling and storage

7.1 Precautions for safe handling

Do not eat, drink or smoke when using these materials. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

Minimise dust in the workplace atmosphere caused by rough handling.

Do not mix or use with acids or powerful oxidising agents.

Avoid spills and ensure that these products do not enter drains or watercourses during use or as a result of any spillage.

HSE has produced a useful free information leaflet "Cadmium and you" - copies can be downloaded from www.hse.gov.uk

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7.2 Conditions for safe storage

Store away from food, drink and animal feeding stuffs. Store under normal warehouse conditions away from sources of ignition, concentrated acids and powerful oxidising agents.

Store only in original containers and keep sealed when not in use.

8. Exposure controls / personal protection

8.1 Control parameters

In its list of approved workplace exposure limits (currently the 2013 update of document EH/40 – available at <http://www.hse.gov.uk/pubns/books/eh40.htm>), the UK HSE lays down the following:

Material	Long-term limit (8-hour TWA)	Short-term limit (15-min TWA)
cadmium pigments	0.03 mg m ⁻³ (respirable dust, calculated as Cd)	No limit set
barium sulphate	10 mg m ⁻³ (inhalable dust) 4 mg m ⁻³ (respirable dust)	No limit set

None of the above limits have changed since the previous edition

In the case of use outside the UK, all relevant local and / or national requirements must be complied with.

In the UK, HSE has produced many “methods for the determination of hazardous substances” documents. Most, if not all, of these methods have been validated against the requirements of EN 482.

Relevant documents for these products are:

MDHS/13 General methods for sampling and gravimetric analysis of respirable and inhalable dust
 MDHS10/2 Cadmium and inorganic compounds of cadmium in air
 MDHS 71 Analytical quality in workplace air sampling
 MDHS 91 Metals and metalloids in workplace air by X-ray fluorescence spectrometry
 MDHS 99 Metals in air by ICP-AES

These methods can be downloaded, free of charge, from the HSE’s Internet site at: www.hse.gov.uk (search for “MDHS”)

HSE also operates a QA scheme for laboratories carrying out the analysis of dust-in-air samples for cadmium: details of the WASP scheme can be found at:

<http://www.hsl.gov.uk/centres-of-excellence/proficiency-testing-schemes/wasp.aspx>

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IMPORTANT NOTE

Shades)

REACH requires that the most up-to-date safety information be used for the production of the registration dossier for any substance. In the case of cadmium and its inorganic compounds, this is the recommendation from the EU's Scientific Committee on Occupational Exposure Levels (SCOEL) on cadmium and its inorganic compounds – SCOEL/SUM/136 – published in February 2010.

SCOEL/SUM/136 recommends an OEL of $4 \mu\text{g} / \text{m}^3$ (as cadmium) for the respirable fraction. The consortium which produced the registration dossiers covering substances a) – c) in the table in section 3.2 has therefore used this limit value in its calculations.

There are currently no proposals to establish the SCOEL recommendation as an EU-wide limit.

8.2 Exposure controls

a) eye / face protection

It is recommended that safety glasses be worn when using these products.

b) skin protection

Overalls and impervious gloves should be worn when using these products.

c) respiratory protection

Use under local exhaust ventilation whenever possible to minimise dust levels. An air face velocity of $0.5 - 1 \text{ m sec}^{-1}$ is suggested. If LEV is not available, or is thought to be insufficient, then use of a dust mask complying with EN 149 type P1 is suggested.

If mixtures containing these products are being sprayed, use of efficient LEV is strongly advised, together with a P1 dust mask: if LEV is not available, use of a P2 or P3 mask is strongly advised. Whenever spraying is being carried out, care needs to be taken to ensure that other persons in the area are also suitably protected.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: Yellow / Orange / Red powder

Melting point / freezing point: Not Applicable

Flammability: Not flammable

Relative density: approx. $3.5 - 5.5 \text{ g cm}^{-3}$
(depending on the product)

Partition coefficient: n-octanol/water: Not Applicable

Initial boiling point and boiling range: Not Applicable

pH: approximately 7 (5 % water suspension)

Upper / lower flammability or explosive limits: Not Applicable

Solubility(ies): Highly insoluble in all solvents

Auto-ignition temperature: Not Applicable

Odour: None

Flash point: Not Applicable

Vapour pressure: Not Applicable

Decomposition temperature: $> 300^\circ\text{C}$

Explosive properties: Not Applicable

Evaporation rate: Not Applicable

Vapour density: Not Applicable

Viscosity: Not Applicable

Oxidising properties: Not Applicable

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10. Stability and reactivity

10.1 Reactivity

These products are unreactive unless they are brought into contact with incompatible materials (see section 10.3).

10.2 Chemical stability

These products are stable under normal atmospheric conditions and storage / handling conditions.

10.3 Possibility of hazardous reactions

If brought into contact with concentrated acids, these products will produce very toxic and flammable hydrogen sulphide (“rotten eggs”).

These products may react violently with powerful oxidising agents and may produce toxic substances (e.g. oxides of nitrogen with nitric acid).

In either of the above cases, clear the area immediately and send for the fire brigade.

10.4 Conditions to avoid

No special precautions need to be taken.

10.5 Incompatible materials

Concentrated acids and powerful oxidising agents

10.6 Hazardous decomposition products

No decomposition products are anticipated under normal conditions of storage and use. See section 5 for information on hazardous substances if involved in a fire.

11. Toxicological information

11.1 Information on toxicological effects

These products are of much lower toxicity than other cadmium compounds due to their extreme insolubility.

A range of values have been reported for oral LD₅₀s for several species exposed to these products: the values are normally > 5000 mg/kg.

Gross overexposure over many years may lead to kidney damage, but this should never happen given modern working conditions.

On the basis of the available data, it is not judged that these products offer a skin irritation / skin sensitisation hazard.

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12. Ecological information

12.1 Toxicology

While most cadmium compounds are environmentally hazardous, the extreme insolubility of these products indicates that they offer an insignificant hazard.

12.2 Persistence and degradability

As highly-stable inorganic compounds, these products do not degrade in the environment.

12.3 Bioaccumulative potential

As these products are highly insoluble in both water and all organic solvents, it is unlikely that they offer any bioaccumulative potential.

12.4 Mobility in soil

Movement of these highly-insoluble products through the soil will only take place by physical movement of the material itself.

12.5 Results of PBT and vPvB assessment

These products do not fall within the definitions of PBT or vPvB.

12.6 Other adverse effects - nothing to mention

13 Disposal considerations

Contact supplier regarding possible return of unwanted material.

Uncontaminated packaging may be safely reused.

Do not burn or reuse contaminated packaging - this must be safely disposed of.

Contaminated or unusable product and contaminated packaging must be disposed of using a facility approved to handle such material. In the UK, this must be done following the requirements of the Environmental Protection Act 1990 and observing the "Duty of Care".

Outside the UK, all relevant national and local legislation must be complied with.

Further information on the chemical composition of a particular product can be provided in order to ensure that they are disposed of using a safe method.

13.1 Waste treatment methods - see above

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13.1 Waste treatment methods - see above

14 Transport information

14.1 UN number - not applicable (please see section 3 note 1)

14.2 UN proper shipping name - not applicable

14.3 Transport hazard class(es) - not applicable

14.4 Packing group - not applicable

14.5 Environmental hazard - not applicable

14.6 Special precautions for user - not applicable

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code - not applicable

15 Regulatory information

15.1 Safety, health and environmental regulations / legislation specific for the substance or mixture

These products contain no persistent organic pollutants (EU Regulation 2037/2000) and no substance which depletes the ozone layer (Regulation 850/2004).

Annex XVII of REACH restricts the use of cadmium in pigments in certain polymers, as well as in aqueous-and non-aqueous based paints. These restrictions only apply within the European Union and do not apply where the use is safety-related e.g. warning signs &c. †

Under Directive 94/62/EC, packaging in the EU may contain no more than 100 pm of lead + mercury + cadmium + chromium (VI). In practice, this means that cadmium pigments may not be used in packaging. †

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Under Directive 2000/53/EC, cadmium may not be intentionally used in materials and components for use in vehicles in the EU. Our Internet site clarifies the definition of “vehicles” in this case. †

Under Directive 2002/95/EC, new electric and electronic equipment placed on the market in the EU may contain no more than 0.01 % cadmium: in practice, this means that cadmium pigments may not be used in these applications.

More detailed information covering the above items marked with a “†” may be found on our Internet site at the following address: www.jamesmbrown.co.uk and we can offer help in the interpretation of these complex pieces of legislation.

Discharge of any cadmium-containing effluent water to the environment must be covered and controlled by an authorisation under Directive 76/462 and its daughter directives.

15.2 Chemical safety assessment

A CSA has been carried out for the constituents of these products.

However, please also see comments in section 3.2 regarding the EU risk assessment of these products.

16 Other information

Changes from the previous version are indicated in bold type.

This document complies with the requirements of Article 31 of EU Regulation 1097/2006 (“REACH”), as amended by EU Regulation 453/2010.

Abbreviations used:

SCOEL	Scientific Committee on Occupational Exposure Limits
CSR	Chemical Safety Report
DSD	Dangerous Substances Directive (67/548/EEC)
GHS	Global Harmonised System
HSE	Health & Safety Executive - the UK competent authority for health and safety at work
LEV	Local exhaust ventilation
PBT	Persistent, bioaccumulative and toxic
TWA	Time-weighted average
vPvB	very Persistent and very Bioaccumulative
WASP	Workplace Analysis for Proficiency (HSE laboratory QA scheme)

SAFETY DATA SHEET



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Important note: this document gives information on the hazards involved in the use of this material: it cannot, however, cover all aspects of the risks associated with such use. This assessment, required by the UK Control of Substances Hazardous to Health Regulations (“COSHH”), can only be carried out by the end-user in the light of the actual conditions of use.

Disclaimer: although the data given in this document is believed to be both complete and up-to-date, due to the many factors outside our control when the product is used, we cannot accept any liability for any accident, injury or damage caused through its use.

< END OF SAFETY DATA SHEET >