

# I U C L I D

# D a t a s e t

Existing Chemical            Substance ID: 7789-09-5  
CAS No.                      7789-09-5  
EINECS Name                 ammonium dichromate  
EINECS No.                  232-143-1  
Molecular Formula          Cr<sub>2</sub>H<sub>2</sub>O<sub>7</sub>.2H<sub>3</sub>N

Dataset created by:        EUROPEAN COMMISSION - European Chemicals Bureau

This dossier is a compilation based on data reported by the European Chemicals Industry following 'Council Regulation (EEC) No. 793/93 on the Evaluation and Control of the Risks of Existing Substances'. All (non-confidential) information from the single datasets, submitted in the IUCLID/HEDSET format by individual companies, was integrated to create this document.

The data have not undergone any evaluation by the European Commission.

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European Chemicals Bureau

**1.0.1 OECD and Company Information**

**Name:** Albright & Wilson UK Limited  
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**Town:** B68 0NN Oldbury  
**Country:** United Kingdom  
**Phone:** +44 121 429 4942  
**Telefax:** +44 121 420 5151  
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**Name:** BASF AG  
**Street:** Karl-Bosch-Str  
**Town:** 67056 Ludwigshafen  
**Country:** Germany

**Name:** Bayer AG  
**Town:** 51368 Leverkusen  
**Country:** Germany

**Name:** British Chrome & Chemicals  
**Town:** TS16 0QG Cleveland  
**Country:** United Kingdom

**1.0.2 Location of Production Site**

-

**1.0.3 Identity of Recipients**

-

**1.1 General Substance Information**

**Substance type:** inorganic  
**Physical status:** solid

**1.1.1 Spectra**

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**1.2 Synonyms**

Ammonium bichromate

**Source:** BASF AG Ludwigshafen

Ammonium Bichromate, Chromic Acid(H<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>).diammonium salt, Di-ammonium Dichromate.

**Source:** British Chrome & Chemicals Cleveland

Ammonium chromate ((NH<sub>4</sub>)<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>)

**Source:** BASF AG Ludwigshafen

Ammonium dichromate

**Source:** BASF AG Ludwigshafen

Ammonium dichromate(VI)

**Source:** BASF AG Ludwigshafen

AMMONIUMDICHROMAT

**Source:** Bayer AG LeverkusenCHROMIC ACID (H<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>), DIAMMONIUM SALT**Source:** Bayer AG LeverkusenChromic acid (H<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>), diammonium salt (9CI)**Source:** BASF AG Ludwigshafen

Diammonium dichromate

**Source:** BASF AG LudwigshafenDichromic acid (H<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>), diammonium salt (8CI)**Source:** BASF AG Ludwigshafen**1.3 Impurities**

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**1.4 Additives**

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**1.5 Quantity**

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**1.6.1 Labelling****Labelling:** as in Directive 67/548/EEC**Symbols:** E  
T+  
N**Nota:** E  
E**Specific limits:** yes**R-Phrases:** (49) May cause cancer by inhalation  
(46) May cause heritable genetic damage  
(1) Explosive when dry  
(8) Contact with combustible material may cause fire  
(21) Harmful in contact with skin  
(25) Toxic if swallowed  
(26) Very toxic by inhalation  
(37/38) Irritating to respiratory system and skin  
(41) Risk of serious damage to eyes  
(43) May cause sensitization by skin contact  
(50/53) Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment**S-Phrases:** (53) Avoid exposure - obtain special instructions before use  
(45) In case of accident or if you feel unwell, seek medical

advice immediately (show the label where possible)  
(60) This material and/or its container must be disposed of as hazardous waste  
(61) Avoid release to the environment. Refer to special instructions/Safety data sets

### **1.6.2 Classification**

**Classification:** as in Directive 67/548/EEC  
**Class of danger:** carcinogenic, category 2  
**R-Phrases:** (49) May cause cancer by inhalation

**Classification:** as in Directive 67/548/EEC  
**Class of danger:** corrosive  
**R-Phrases:** (21) Harmful in contact with skin

**Classification:** as in Directive 67/548/EEC  
**Class of danger:** dangerous for the environment  
**R-Phrases:** (50) Very toxic to aquatic organisms  
(53) May cause long-term adverse effects in the aquatic environment

**Classification:** as in Directive 67/548/EEC  
**Class of danger:** explosive  
**R-Phrases:** (1) Explosive when dry

**Classification:** as in Directive 67/548/EEC  
**Class of danger:** irritating  
**R-Phrases:** (37/38) Irritating to respiratory system and skin  
(41) Risk of serious damage to eyes

**Classification:** as in Directive 67/548/EEC  
**Class of danger:** mutagenic, category 2  
**R-Phrases:** (46) May cause heritable genetic damage

**Classification:** as in Directive 67/548/EEC  
**Class of danger:** oxidizing  
**R-Phrases:** (8) Contact with combustible material may cause fire

**Classification:** as in Directive 67/548/EEC  
**Class of danger:** toxic  
**R-Phrases:** (25) Toxic if swallowed

**Classification:** as in Directive 67/548/EEC  
**Class of danger:** very toxic  
**R-Phrases:** (26) Very toxic by inhalation

**Classification:** as in Directive 67/548/EEC  
**Class of danger:**  
**R-Phrases:** (43) May cause sensitization by skin contact

### 1.7 Use Pattern

**Type:** type  
**Category:** Non dispersive use

**Type:** type  
**Category:** Use in closed system

**Type:** type  
**Category:** Use resulting in inclusion into or onto matrix

**Type:** industrial  
**Category:** Basic industry: basic chemicals

**Type:** industrial  
**Category:** Chemical industry: used in synthesis

**Type:** use  
**Category:** Intermediates

**Type:** use  
**Category:** Process regulators

**Type:** use  
**Category:** other: Stoff zur Herstellung von Cr2O3

### 1.7.1 Technology Production/Use

-

### 1.8 Occupational Exposure Limit Values

**Type of limit:** MAK (DE)  
**Limit value:**  
**Remark:** Limit value: 0.1 mg/m<sup>3</sup> calculated as CrO<sub>3</sub>  
in form of dust/aerosols  
water soluble chromium(VI) compounds are classified as  
carcinogens III A2  
**Source:** Bayer AG Leverkusen

**Type of limit:** MAK (DE)  
**Limit value:**  
**Remark:** MAK-Liste, Abschnitt III A 2  
TRK-Wert 0.1 mg/m<sup>3</sup>; berechnet als CrO<sub>3</sub>  
**Source:** BASF AG Ludwigshafen

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**Type of limit:** MEL (UK)  
**Limit value:** .05 mg/m<sup>3</sup>  
**Country:** United Kingdom  
**Remark:** Value is 0.05 mgCr/m<sup>3</sup>  
**Source:** British Chrome & Chemicals Cleveland

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### **1.9 Source of Exposure**

**Country:** United Kingdom  
**Remark:** Production Process

Chromium trioxide is reacted with an ammonium salt in solution. The resultant ammonium dichromate is separated from solution via a crystallisation stage prior to drying and packing.

**Source:** British Chrome & Chemicals Cleveland

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### **1.10.1 Recommendations/Precautionary Measures**

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### **1.10.2 Emergency Measures**

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### **1.11 Packaging**

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### **1.12 Possib. of Rendering Subst. Harmless**

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### **1.13 Statements Concerning Waste**

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### **1.14.1 Water Pollution**

**Classified by:** KBwS (DE)  
**Labelled by:** KBwS (DE)  
**Class of danger:** 3 (strongly water polluting)  
**Source:** Bayer AG Leverkusen  
BASF AG Ludwigshafen

**1.14.2 Major Accident Hazards**

**Legislation:** Stoerfallverordnung (DE)  
**Substance listed:** yes  
**Remark:** Stoerfallstoff-Nr: 117.03  
**Source:** Bayer AG Leverkusen

**Legislation:** Stoerfallverordnung (DE)  
**Substance listed:** yes  
**Remark:** Stoff-Nr.: 117  
**Source:** BASF AG Ludwigshafen

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**1.14.3 Air Pollution**

**Classified by:** TA-Luft (DE)  
**Labelled by:** TA-Luft (DE)  
**Number:** 2.3 (carcinogenic substances)  
**Class of danger:**  
**Remark:** Data related to Chromium  
**Source:** Bayer AG Leverkusen

**Classified by:** TA-Luft (DE)  
**Labelled by:** TA-Luft (DE)  
**Number:** 2.3 (carcinogenic substances)  
**Class of danger:**  
**Remark:** Gefahrenklasse nicht festgelegt  
**Source:** BASF AG Ludwigshafen

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**1.15 Additional Remarks**

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**1.16 Last Literature Search**

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**1.17 Reviews**

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**1.18 Listings e.g. Chemical Inventories**

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**2.1 Melting Point**

**Value:** >= 180 degree C  
**Decomposition:** yes  
**Source:** Bayer AG Leverkusen

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**2.2 Boiling Point**

**Value:**  
**Source:** Bayer AG Leverkusen

**2.3 Density**

**Type:** density  
**Value:** 2.15 g/cm3 at 20 degree C  
**Source:** Bayer AG Leverkusen

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**Type:** bulk density  
**Value:** 1000 kg/m3  
**Source:** Bayer AG Leverkusen

**2.3.1 Granulometry**

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**2.4 Vapour Pressure**

**Value:**  
**Remark:** n.a.  
**Source:** Bayer AG Leverkusen

**2.5 Partition Coefficient**

**log Pow:**  
**Method:**  
**Year:**  
**Remark:** n.a.  
**Source:** Bayer AG Leverkusen

**2.6.1 Water Solubility**

**Value:** 360 g/l at 20 degree C  
**Source:** Bayer AG Leverkusen

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**2.6.2 Surface Tension**

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**2.7 Flash Point****Value:****Type:****Method:****Year:****Remark:** n.a.**Source:** Bayer AG Leverkusen**2.8 Auto Flammability****Value:** = 180 degree C**Source:** Bayer AG Leverkusen**2.9 Flammability**

-

**2.10 Explosive Properties****Result:** other: if heated in a closed container the substance is explosive**Source:** Bayer AG Leverkusen**2.11 Oxidizing Properties**

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**2.12 Additional Remarks****Remark:** pH-value: ca. 4,3 at 100 g/l water at 20 degree C.**Source:** Bayer AG Leverkusen

**3.1.1 Photodegradation**

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**3.1.2 Stability in Water**

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**3.1.3 Stability in Soil**

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**3.2 Monitoring Data (Environment)**

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**3.3.1 Transport between Environmental Compartments**

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**3.3.2 Distribution**

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**3.4 Mode of Degradation in Actual Use**

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**3.5 Biodegradation**

Type:

Inoculum:

Method:

Year:

GLP:

Test substance:

Remark: n.a.

Source: Bayer AG Leverkusen

**3.6 BOD5, COD or BOD5/COD Ratio**

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**3.7 Bioaccumulation**

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**3.8 Additional Remarks**

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**AQUATIC ORGANISMS****4.1 Acute/Prolonged Toxicity to Fish**

**Type:** static  
**Species:** Gambusia affinis (Fish, fresh water)  
**Exposure period:** 48 hour(s)  
**Unit:** mg/l **Analytical monitoring:** no  
**TLM :** 212  
**Method:**  
**Year:** **GLP:** no  
**Test substance:** other TS: chemically pure  
**Remark:** test in turbid water: 220 ppm soil  
**Source:** Bayer AG Leverkusen

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**Type:** static  
**Species:** Gambusia affinis (Fish, fresh water)  
**Exposure period:** 96 hour(s)  
**Unit:** mg/l **Analytical monitoring:** no  
**TLM :** 136  
**Method:**  
**Year:** **GLP:** no  
**Test substance:** other TS: chemically pure  
**Remark:** test in turbid water: 200 ppm soil  
**Source:** Bayer AG Leverkusen

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**Type:** static  
**Species:** Leuciscus idus (Fish, fresh water)  
**Exposure period:** 48 hour(s)  
**Unit:** mg/l **Analytical monitoring:** no  
**LC0:** 50  
**Method:** other: Bestimmung der akuten Wirkung von Stoffen auf Fische.  
Arbeitskreis "Fischtest" im Hauptausschuss "Detergentien"  
(15.10.73)  
**Year:** 1978 **GLP:** no  
**Test substance:**  
**Source:** Bayer AG Leverkusen

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**4.2 Acute Toxicity to Aquatic Invertebrates**

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**4.3 Toxicity to Aquatic Plants e.g. Algae**

-

**4.4 Toxicity to Microorganisms e.g. Bacteria**

**Type:** aquatic  
**Species:** Pseudomonas fluorescens (Bacteria)  
**Exposure period:** 24 hour(s)  
**Unit:** mg/l **Analytical monitoring:** no  
**EC0:** 10  
**Method:** other: Bestimmung der biologischen Schadwirkung toxischer Abwaesser gegen Bakterien. DEV, L 8 (1968) modifiziert  
**Year:** 1978 **GLP:** no  
**Test substance:**  
**Source:** Bayer AG Leverkusen

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**4.5 Chronic Toxicity to Aquatic Organisms****4.5.1 Chronic Toxicity to Fish**

-

**4.5.2 Chronic Toxicity to Aquatic Invertebrates**

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**TERRESTRIAL ORGANISMS****4.6.1 Toxicity to Soil Dwelling Organisms**

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**4.6.2 Toxicity to Terrestrial Plants**

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**4.6.3 Toxicity to other Non-Mamm. Terrestrial Species**

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**4.7 Biological Effects Monitoring**

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**4.8 Biotransformation and Kinetics**

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**4.9 Additional Remarks**

**Remark:** Cr is reduced in naturel water by org. material to Cr III.  
Cr III precipitates as hydroxide and will be mineralized.  
**Source:** Bayer AG Leverkusen

**5.1 Acute Toxicity****5.1.1 Acute Oral Toxicity**

Type: LD50  
Species: rat  
Sex:  
Number of  
Animals:  
Vehicle:  
Value: 80 mg/kg bw  
Method:  
Year: GLP:  
Test substance:  
Source: Bayer AG Leverkusen (8)

Type: LD50  
Species: rat  
Sex:  
Number of  
Animals:  
Vehicle:  
Value: 53.75 mg/kg bw  
Method:  
Year: GLP:  
Test substance:  
Source: Bayer AG Leverkusen (9) (10)

Type: LD50  
Species: rat  
Sex:  
Number of  
Animals:  
Vehicle:  
Value: 67.5 mg/kg bw  
Method:  
Year: GLP:  
Test substance:  
Source: Bayer AG Leverkusen (11)

**5.1.2 Acute Inhalation Toxicity**

Type: LC50  
Species: rat  
Sex:  
Number of  
Animals:  
Vehicle:  
Exposure time: unspecified  
Value: .158 mg/l  
Method:  
Year: GLP:  
Test substance:  
Source: Bayer AG Leverkusen (9) (10)

Type: LC50  
Species: rat  
Sex:  
Number of  
Animals:  
Vehicle:  
Exposure time: 4 hour(s)  
Value: .156 mg/l  
Method:  
Year: GLP:  
Test substance:  
Source: Bayer AG Leverkusen (12)

**5.1.3 Acute Dermal Toxicity**

Type: LD50  
Species: rabbit  
Sex:  
Number of  
Animals:  
Vehicle:  
Value: 1640 mg/kg bw  
Method:  
Year: GLP:  
Test substance:  
Source: Bayer AG Leverkusen (9)

Type: LD50  
Species: rabbit  
Sex:  
Number of  
Animals:  
Vehicle:  
Value:  
Method:  
Year: GLP:  
Test substance:  
Remark: Species: New Zeland albino, both sexes  
Value: 1170 +/- 150 mg/kg  
Source: British Chrome & Chemicals  
Bayer AG Leverkusen

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Type: LD50  
Species:  
Sex:  
Number of  
Animals:  
Vehicle:  
Value: 1840 mg/kg bw  
Method:  
Year: GLP:  
Test substance:  
Source: Bayer AG Leverkusen

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#### **5.1.4 Acute Toxicity, other Routes**

Type: other: LDlo  
Species: guinea pig  
Sex:  
Number of  
Animals:  
Vehicle:  
Route of admin.: s.c.  
Value: 25 mg/kg bw  
Method:  
Year: GLP:  
Test substance:  
Source: Bayer AG Leverkusen

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Type: LD50  
Species: rat  
Sex:  
Number of  
Animals:  
Vehicle:  
Route of admin.: i.v.  
Value: 30 mg/kg bw  
Method:  
Year: GLP:  
Test substance:  
Source: Bayer AG Leverkusen

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## **5.2 Corrosiveness and Irritation**

### **5.2.1 Skin Irritation**

Species: rabbit  
Concentration:

Exposure:  
Exposure Time:  
Number of  
Animals:

PDII:  
Result: not irritating  
EC classificat.:  
Method: other: (see remarks)

Year: GLP:  
Test substance:  
Remark: ear, 2 animals, 500 mg/animal, application period 24 hours,  
postexposure period 7 days  
Source: Bayer AG Leverkusen

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Species: other: no data  
Concentration:

Exposure:  
Exposure Time:  
Number of  
Animals:

PDII:  
Result:  
EC classificat.:  
Method: other: (see remarks)

Year: GLP:  
Test substance:  
Remark: - solid material, 4 h exposure: no corrosion, but  
well-defined erythema in two of six animals  
- solid material, moisted with physiological saline: no  
corrosion, but well-defined erythema and edema in all six  
animals, two of which showed necrotic focal sites  
Source: Bayer AG Leverkusen

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Species: other: no data  
Concentration:  
Exposure:  
Exposure Time:  
Number of  
Animals:  
PDII:  
Result:  
EC classificat.:  
Method: other: no data  
Year: GLP:  
Test substance:  
Remark: strong irritant  
Source: Bayer AG Leverkusen

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### 5.2.2 Eye Irritation

Species: rabbit  
Concentration:  
Dose:  
Exposure Time:  
Comment:  
Number of  
Animals:  
Result:  
EC classificat.:  
Method: other: see remark  
Year: GLP:  
Test substance:  
Remark: strong irritation, corrosive effects on corneaepithel.  
Test method: 2 animals, 50 mg/animal in the conjunctival  
sack, observation period 7 days.  
Source: Bayer AG Leverkusen

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### 5.3 Sensitization

Type: Patch-Test  
Species: human  
Number of  
Animals:  
Vehicle:  
Result:  
Classification:  
Method:  
Year: GLP:  
Test substance:  
Remark: one single case, worker engaged in the production of  
television tubes: patch test positive with ammonium  
dichromate and potassium dichromate.  
Source: Bayer AG Leverkusen

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**Type:** Patch-Test  
**Species:** human  
**Number of Animals:**  
**Vehicle:**  
**Result:**  
**Classification:**  
**Method:**  
**Year:** **GLP:**  
**Test substance:**  
**Remark:** one single case with ulceration of the skin of both hands, asthma: patch test positive, positive skin reaction after intradermal injection  
**Source:** Bayer AG Leverkusen (19)

**Type:** Patch-Test  
**Species:** human  
**Number of Animals:**  
**Vehicle:**  
**Result:**  
**Classification:**  
**Method:**  
**Year:** **GLP:**  
**Test substance:**  
**Remark:** 20 cases of occupational dermatitis, the major cause was sensitivity to ammonium dichromate (no further data).  
**Source:** Bayer AG Leverkusen (20)

#### 5.4 Repeated Dose Toxicity

**Species:** rat **Sex:** no data  
**Strain:** no data  
**Route of admin.:** inhalation  
**Exposure period:** 1 to 6 months  
**Frequency of treatment:** 2 hours/day, 3 days/week  
**Post. obs. period:** no  
**Doses:** 1 mg/m<sup>3</sup>  
**Control Group:** no data specified  
**Method:**  
**Year:** **GLP:**  
**Test substance:**  
**Result:** disturbance of blood circulation in lungs, edema, proliferation of bronchial epithelium in 24/36 animals, pneumonia, after 6 months 33/36 animal had died.  
**Source:** Bayer AG Leverkusen (21)

**Species:** rat **Sex:** no data  
**Strain:** no data  
**Route of admin.:** inhalation  
**Exposure period:** 6 months  
**Frequency of treatment:** 2h/day, every other day  
**Post. obs. period:** no  
**Doses:** 0.05 mg/m<sup>3</sup>  
**Control Group:** no data specified  
**Method:**  
**Year:** **GLP:**  
**Test substance:**  
**Result:** proliferation of bronchial epithelium, papillary growths in the bronchi and pneumonia (no further data).  
**Source:** Bayer AG Leverkusen

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### 5.5 Genetic Toxicity 'in Vitro'

**Type:** DNA damage and repair assay  
**System of testing:** E. coli WP2, WP100  
**Concentration:**  
**Metabolic activation:** no data  
**Result:** positive  
**Method:**  
**Year:** **GLP:**  
**Test substance:**  
**Source:** Bayer AG Leverkusen

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**Type:** DNA damage and repair assay  
**System of testing:** B. subtilis H17 and M45  
**Concentration:**  
**Metabolic activation:** without  
**Result:** positive  
**Method:**  
**Year:** **GLP:**  
**Test substance:**  
**Source:** Bayer AG Leverkusen

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**Type:** DNA damage and repair assay  
**System of testing:** S. typhimurium TA1978 and TA1538  
**Concentration:**  
**Metabolic activation:** without  
**Result:** positive  
**Method:**  
**Year:** **GLP:**  
**Test substance:**  
**Source:** Bayer AG Leverkusen

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### 5.6 Genetic Toxicity 'in Vivo'

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### 5.7 Carcinogenicity

**Species:** other: (see remarks) **Sex:**  
**Strain:**  
**Route of admin.:**  
**Exposure period:**  
**Frequency of treatment:**  
**Post. obs. period:**  
**Doses:**  
**Result:**  
**Control Group:**  
**Method:**  
**Year:** **GLP:**  
**Test substance:**  
**Remark:** MAK-Liste Abschnitt III A2 (atembare Staube und Aerosole)  
**Source:** Bayer AG Leverkusen

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### 5.8 Toxicity to Reproduction

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### 5.9 Developmental Toxicity/Teratogenicity

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### 5.10 Other Relevant Information

**Type:**  
**Remark:** Reviews on toxicity of chromium compounds:  
- IARC monographs on evaluation of carcinogenic risks in humans. Suppl. 6 & 7 (1987) and Vol. 23 (1980)  
- EPA: Health effects assessment for trivalent chromium (1984)  
- Agency for Toxic Substances and Disease Registry: Toxicological profile for chromium. Draft (1988)

- Environmental Health Criteria 61: Chromium. WHO (1988)
- Deutsche Forschungsgemeinschaft: toxikologisch arbeitsmedizinische Begründung von MAK-Werten (1972), (1987)

**Source:** Bayer AG Leverkusen

**Type:**

**Remark:** Interactions between selenium and ammonium dichromate were investigated in a drinking water study using rats. During the experiment, one rat died and the other rats had atrophy of the central liver lobe when given selenium alone. Although the rats were not fed chromium alone, other experiments indicate that the liver is not a target for chromium exposure.

**Source:** British Chrome & Chemicals  
Bayer AG Leverkusen

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**Type:**

**Remark:** Evaluation done by IARC (1990):  
There is sufficient evidence in humans for the carcinogenicity of chromium(VI) compounds as encountered in the chromate production, chromate pigment production and chromium plating industries.  
There is inadequate evidence in humans for the carcinogenicity of metallic chromium and of chromium(III) compounds.  
There is sufficient evidence in experimental animals for the carcinogenicity of calcium chromate, zinc chromates, strontium chromate and lead chromates.  
There is limited evidence in experimental animals for the carcinogenicity of chromium trioxide (chromic acid) and sodium dichromate.  
There is inadequate evidence in experimental animals for the carcinogenicity of metallic chromium, barium chromate and chromium(III) compounds.  
The working group made the overall evaluation on chromium(VI) compounds on the basis of the combined results of epidemiological studies, carcinogenicity studies in experimental animals, and several types of the other relevant data which support the underlying concept that chromium(IV) ions generated at critical sites in the target cells are responsible for the carcinogenicity action observed.  
Chromium(VI) is carcinogenic to humans (Group 1). Metallic chromium and chromium(III) compounds are not classified as to their carcinogenicity to humans (Group 3).

**Source:** British Chrome & Chemicals  
Bayer AG Leverkusen

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### **5.11 Experience with Human Exposure**

**Remark:** Epidemiological studies of cancer in workers in the chromate-producing industries, chromate pigment industries, chromeplating industries and ferrochromium industries are summarized in the IARC monograph 23(1980). The data do not allow an evaluation of the relative contributions to carcinogenic risk of the different chromium compounds. Contact hypersensitivity and chronic ulcers have occurred in workers in contact with chromium compounds.

**Source:** Bayer AG Leverkusen

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**Remark:** Abdominal pain, vomiting, and gastrointestinal haemorrhage have occurred in humans who eventually died after ingesting chromium(VI) as  $\text{CrO}_3$ ,  $\text{Na}_2\text{Cr}_2\text{O}_7$  or  $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$ .

**Source:** British Chrome & Chemicals  
Bayer AG Leverkusen

(29) (30)

- (1) Bayer AG, Sicherheitsdatenblatt Ammoniumdichromat
- (2) EH 40 - Occupational Exposure Limits 1993 (revised annually). A Health & Safety Executive publication.
- (3) British Chrome & Chemicals data.
- (4) StörfallVO vom 20.09.1991
- (5) Safety data sheets Bayer AG
- (6) Wallen, I.E. et al., Sewage and Industrial Wastes 29, 695-711 (1957)
- (7) Bayer AG data
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**7.1 Risk Assessment**

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