

SODA SANAYİİ A.Ş. KROMSAN KROM BİLEŞİKLERİ FABRİKASI



SAFETY DATA SHEET According to 91/155/EC	Sodium Bichromate	Date : 01.07.1995 Rev. Date : 17.07.2009
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REACH PRE-REGISTRATION REFERENCE NUMBER: 05-2114109562-57-0000

1. Identification of Substance, Preparation and Company

Name	: Anhydrous Sodium Bichromate
Synonyms	: Chromic Acid (H ₂ Cr ₂ O ₇) Disodium Salt Anhydrous Sodium Dichromate,
Molecular Formula	: Na ₂ Cr ₂ O ₇
CAS No	: 10588-01-9
EEC No	: 234-190-3
Company	: Soda Sanayii A.Ş. Kromsan Krom Bileşikleri Fabrikası P.K. 421 33003 MERSİN/TÜRKİYE
Telephone Number	: +90 324 241 6600
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2. Composition / Information on Ingredients

Typical Analysis (not to be used as a specification)

	%	CAS NO	EEC NO	Supply Classification
Na ₂ Cr ₂ O ₇	99.0 – 99.5	10588-01-9	234-190-3	O-R8; Carc.Cat. 2-R45; Muta Cat. 2-R46; Repr Cat. 2-R60-61; T+R26; T-R25-48/23; Xn-R21; Sensitising- R34, R42/43; N-R50/53

3. Hazards Identification

Classification : O: Oxidizing, Carc.Cat 2, Muta.Cat 2, Repr.Cat 2, T+ Very Toxic, T Toxic, Xn Harmful, Sensitizing, N-Dangerous For The Environment.

Human Effects:

Irritating to eyes, respiratory system and skin. May cause heritable genetic damage. May cause sensation by skin contact.

Ingestion may cause irritation of the upper gastro-intestinal tract.

Inhalation may lead to ulceration of the mucous membranes of the nose.

Prolonged or repeated exposure can lead to perforation of the nasal septum.

Chromium (VI) soluble salts are absorbed by the body after direct contact with the skin and mucous membranes – can cause systemic poisoning and subsequent liver and kidney damage.

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Chemical Hazards:

This substance is mildly oxidizing in solution but becomes strongly oxidizing in strong acid solution. Avoid contact with the organic materials, oils, greases and any oxidizable material.

Environmental Effects: Cr(VI) compounds are toxic in the environment.

Cr(VI) added to natural waters containing organic material is reduced to Cr (III) being precipitated as the Hydroxide.

4. First Aid Measures

Skin Exposure

Symptoms and effects: Contact with irritated skin may lead to formation of firmly margined "Chrome sores". Massive exposure to solutions could lead to kidney failure and death.

Action to be taken: Wash contaminated areas with plenty of water and soap. Remove contaminated clothing and footwear and wash clothing before reuse. Discard footwear, which cannot be decontaminated. Seek medical attention immediately.

Eye Exposure

Symptoms and effects: Overexposure will cause severe irritation and potential permanent damage to eyes. Exposure to low-level concentrations may cause moderate irritation or conjunctivitis.

Action to be taken: Immediately flush eyes with plenty of water for at least 15 minutes holding eyelids apart to ensure flushing of entire eye surface. Washing eyes within 1 minute is essential to achieve maximum effectiveness. Seek medical attention immediately.

Inhalation

Symptoms and effects: Inhalation of dust or mist may cause irritation of the nasal septum and respiratory tract. Prolonged or repeated exposure may cause ulceration and perforation of the nasal septum. May cause damage in the liver or kidneys.

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Action to be taken: Get person out of contaminated area to fresh air. If breathing has stopped, artificial respiration should be started by a trained person. If readily available, oxygen must be administered. If conscious, irrigate nasal passages and mouth with water. Seek medical attention immediately.

Ingestion

Symptoms and effects: Can cause severe tissue destruction. Kidney failure may follow and result in death.

Action to be taken: Never give anything by mouth to an unconscious person. If conscious, give several glasses of water/milk. If swallowed, DO NOT INDUCE VOMITTING. If vomiting occurs spontaneously, keep airway clear and give more water. Seek medical attention immediately.

Accident victims should be given 5-10 g ascorbic acid (non effervescent form) dissolved in water. Dose of 5-10 g ascorbic acid per day may be repeated depending on the severity of poisoning.

Obtain advice from:

SSK İstanbul Meslek Hastalıkları Hastanesi, Süreyyapaşa Maltepe /
Kartal İSTANBUL

Telephone : +90 216 441 2350

Fax No : +90 216 352 0954

Çalışma Bakanlığı Meslek Hastalıkları Hastanesi İşçi Sağlığı İş Güvenliği Merkez
Müdürlüğü Binası İstanbul Asfaltı 14. km.

Köyler/ANKARA

Telephone : +90 312 278 0423

5. Fire Fighting Methods (Not Combustible)

Special Protective Equipment for Fire fighters: Use self-contained breathing apparatus and full protective clothing should be provided for fire fighters in buildings or confined spaces where sodium bichromate (crystal) is stored.

Incompatibility: May react with readily oxidizable/combustible materials especially at elevated temperatures. It is incompatible with hydroxylamine.

Decomposition: Decomposition begins at 400 °C liberating oxygen, no hazardous decomposition products observed under normal conditions of use.

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Measures: All extinguisher types can be used; select on the basis of material types present.

Fire Potential: Reacts violently with; Boron+silicon (pyrotechnic), organic residues+sulfuric acid, 2-propanol+sulfuric acid, sulfuric acid+trinitrotoluene;

Explosion Limits/Potential: Explosion potential with; acetic anhydride, sulfuric acid+ethanol+heat, hydrazine

6. Accidental Release Measures

After Spillage/Leakage/Dust leakage: Collect spilled material in a closed metal container for reclamation or disposal.

Personal Precaution: Operatives to use Personal Protective Equipment, i.e. eye protection, appropriate respiratory equipment and gloves, overalls and safety footwear.

Environmental Precautions: Do not empty into drains, sewers/watercourses i.e. contain. If spillage does enter watercourses or sewers inform the appropriate local water authority or National Regulatory body immediately.

Groundwater Directives: Chromium and its compounds are List II substances.

Small areas of contamination that cannot be removed may be treated with ferrous sulphate solution or sodium metabisulphite solution to reduce the hexavalent chromium to the trivalent form and the pH adjusted to 8.5 with sodium carbonate or sodium hydroxide solution to precipitate chromium hydroxide. Use Personal Protective Equipment.

7. Handling and Storage

Handling: Wear Personal Protective Equipment to avoid contact with skin, eyes or clothing. Avoid breathing dust or mist from solutions. Wash thoroughly after handling; and use good personal hygiene and house keeping. Handle carefully in a manner that minimizes dusting and splashes.

Storage: Sodium bichromate should be kept in a dry place; away from combustible, organic or other readily oxidizable materials, and protected from physical damage. Avoid storage on wooden floors. Keep product away from heat and sun. Keep container closed when not in use.

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Ventilation: Use adequate ventilation.

8. Exposure Controls / Personal Protection

Occupational Exposure Requirements:

Country		Type	8 hr. TWA
UK	HSE	MEL	0.05 mg Cr/m ³
DE	MAK	TRK	0.05 mg Cr/m ³
USA	ACGIH	TLV	0.05 mg Cr/m ³

Control Measures: The control measures necessary to prevent/minimize exposure to sodium bichromate are ideally totally enclosed process and handling systems. Where, however, user operations are likely to generate dust, fume or mist/spray, local exhaust ventilation with partial enclosure should be employed.

Maximum Exposure Limit: The user must take precautions to ensure that the environmental controls employed are adequate to maintain exposure level below the Maximum Exposure Limit of 0.05 mg Cr/m³ 8hr. TWA.

Monitoring: It may be necessary, dependent upon the users assessment of the processes employed to undertake a program of monitoring to demonstrate that the Maximum Exposure Limit is not exceeded.

Personal Protection

Eyes: Close fitting chemical goggles to BS EN 166-349-B (Eyewash facility should be in close proximity to work area.)

Hands: Rubber or PVC gloves.

Respiratory Protection: Selection of type should be based upon the likely workplace concentrations and the Maximum Exposure Limit of 0.05 mg Cr/m³. For half mask respirators, use filter type P3. Reference to HSE Guidance is recommended.

Body Protection: Where overalls or other protective clothing is supplied to the operator, it is recommended that this clothing be laundered at the end of the working period.

Hygiene: When using sodium bichromate, do not eat, drink or smoke. Take off immediately all contaminated clothing. Wear suitable protective clothing.

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General Precautions: Clean protective equipment should be used daily. Cover cuts, grazes or broken skin with impervious dressings to avoid contamination. Workers should take a hot shower at the end of the working period or day. Emergency shower should be in close proximity to work area.

9. Physical and Chemical Properties*

Molecular Weight	: 262.0
Appearance/Physical State	: Orange red crystalline solid
Odor	: None
Boiling Point	: Decomposes above 400 °C
Melting point	: 356.7 °C
Flash Point	: N/A
Flammability	: N/A
Auto flammability	: N/A
Explosive Properties	: N/A
Oxidizing Properties	: Mildly oxidizing in solution, strongly oxidizing in acid solution
Vapor Pressure	: N/A
Density	: 2.52 g/cm ³ at 20 °C
Specific Gravity	: 2.7
Insoluble Amount	: 0.01%
Solubility	: 64 % w/w at 20 °C 238 g/100 cc water at 0°C 508 g/100 cc water at 80°C
Bulk Density	: 1.5 kg/l
Na₂Cr₂O₇	: 99.0 – 99.5 %
CrO₃ (by calculation)	: 75.6 – 76.0 %
Sulfates as Na₂SO₄	: 0.1 %
Chlorides as NaCl	: 0.2 %
Iron as Fe	: 0.002 %
pH (1 % solution)	: 4.0
pH (10 % solution)	: 3.5

*Not to be used as a product specification

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10. Stability and Reactivity

Stability: Stable under normal use conditions.

Conditions to avoid: This substance is mildly oxidizing in solution but becomes strongly oxidizing in strong acid solution.

Materials to avoid: Contact with organic materials, oils, greases or other oxidisable materials.

Thermal Decomposition: Decomposition starts at 400 °C.

Hazardous Decomposition Products: Thermal decomposition may produce chromic oxide (Cr₂O₃) or other oxides of chromium and the Cr (VI) substance sodium chromate, which has similar hazardous properties to sodium bichromate

11. Toxicological Information

Acute Toxicity

Oral LD ₅₀	(Rat)	51 mg/kg (both sexes)
Inhalation LC ₅₀	(Rat)	0.124 mg/l/4hr (both sexes)
Dermal LD ₅₀	(Rabbit)	1000 mg/kg (both sexes)
Irritant (4 hr.)	(Rabbit skin)	Not a corrosive agent

These values are applicable to sodium bichromate dehydrate.

Routes of Exposure:

The mutagenicity classification relates to DNA damage occurring in the exposed individual and has to be distinguished from the entirely separate classification of toxic to reproduction. Occupational exposure to hexavalent chromium (Cr VI) may add to the total body burden of genetic damage. Epidemiology and animal exposure tests using protocols relevant to the occupational environment have confirmed that the ultimate end point arising from the genetic damage is increased risk of respiratory cancer with no indication of damage being heritable. The precautions in place to protect against cancer risk will provide adequate protection against mutagenicity.

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Chronic Toxicity: Prolonged or repeated exposure to sodium bichromate dust/mist may cause chronic eye irritation, skin ulceration and ulceration and perforation of the nasal septum. Dermatological studies in the chromate production, chromate pigment and chromium plating industries indicate that long-term exposure to dust and mists containing (Cr VI) is associated with increased risk of respiratory tract cancer in humans. The specific soluble compounds of hexavalent chromium that “may reasonably be anticipated to be carcinogenic by inhalation” have not been identified other than chromium trioxide. Partially soluble and insoluble compounds such as zinc and zinc potassium chromate, chromium III chromates, strontium and calcium chromates already carry a carcinogenic category classification.

12. Ecological Information

Persistence/Degradability: Chromium (VI) in water will eventually be reduced to chromium (III) by organic matter in the water. Most chromium released into water will ultimately be deposited in the sediment.

Bioaccumulation Potential: Bioaccumulation of chromium from soil to above ground parts of plants is unlikely.

Chromium is commonly found in freshwater organisms and is accumulated to a moderate extent.

Biomagnification: There is no indication of biomagnification of chromium along the terrestrial food chain (soil-plant-animal)

Aquatic Toxicity:

96 hr. LC50 Rainbow trout (*Salmo gairdneri*) 69 mg Cr/l

24 hr. EC50 *Daphnia magna* 1.4 mg Cr/l

24 hr. ECO *Pseudomonas fluorescens* 100 mg/l (Sewage)

Do not allow entering into local drains/watercourses/sewers or soil. Toxicity tends to increase with decreasing water hardness and increasing temperature.

Directive 76/464/EEC: Chromium and its compounds are List II substances.

13. Disposal Considerations

Solid: If quantity is substantial, return to supplier or manufacturer. Small quantities should be disposed via a licensed waste contractor.

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Liquid: Reduce to the trivalent Cr(III) by the methods described under “Accidental Release Measures”. Dispose of via a licensed Waste Contractor to licensed disposal site. Duty of Care Regulations [Section 34 of the Environmental Protection Act (1990)], Control of Pollution (Special Waste) Regulations 1980, Turkish Hazardous Waste Control Regulations published in Official Gazette (August 27, 1995) and Second General Administrative Provision on the Waste Avoidance and Waste Management Act apply.

Groundwater Directive: Chromium and its compounds are List II substances.

Contaminated Packaging: It is recommended that contaminated waste be placed into plastic sacks suitably sealed prior to disposal by a licensed Waste Contractor as “special waste”

14. Transport Information (Regulations)

Substance	: Anhydrous Sodium Bichromate
Packaging	: 25 or 50 kg inner layer polyethylene, outer layer polypropylene woven bags; palletized, shrink-wrapped. 1 ton intermediate bulk container.
Carriage Classification	: Toxic solid, inorganic, N.O.S.
Substance Identification No	: 3288 [UN No. 3288], Packaging Group III
ICAO/IATA Class	: 6.1 UN No. 3288, PG III
IMDG Class	: 6.1 UN No. 3288, PG III, MFAG No.4.2, EMS No. 6.1-04
ADR.RID	: 6.1 UN No. 3288, PG III, Classification Code : T5
Emergency action Code	: 2X
Hazard Identification No	: 60
Transport Hazard Symbol	:



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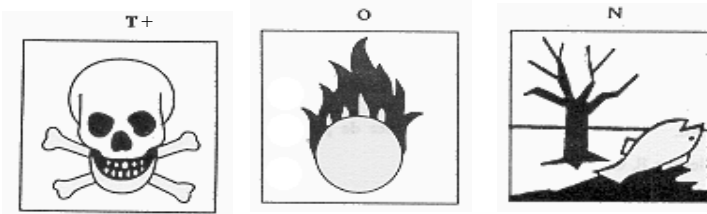
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15. Regulatory Information

Substance : Anhydrous Sodium Dichromate CAS No.: 10598-01-9
EEC No. : 234-190-3

Supply Classification: Oxidiser-R8; Carcinogen Cat.2-R45; Mutagen Cat.2-R46; Repr.Cat.2-R60,R61; T+Very Toxic-R26; T-Toxic-R25,R48/23; Xn-Harmful-R21; Sensitiser-R34,R42/43; N-Dangerous for the Environment-R50/53

Hazard Pictogram: T+, O, N



Risk Phrases:

- R45 May cause cancer
- R42/43 May cause sensitization by inhalation and skin contact.
- R46 May cause heritable genetic damage
- R8 Contact with combustible material may cause fire
- R21 Also Harmful in contact with skin
- R25 Also Toxic if swallowed
- R26 Also Very toxic by inhalation
- R34 Causes burns
- R48/23 Also Toxic: Danger of serious damage to health by prolonged exposure through inhalation
- R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
- R60 May impair fertility
- R61 May cause harm to the unborn child

Safety Phrases:

- S53 Avoid exposure-obtain special instructions before use
- S45 In case of accident or if you feel unwell, seek medical advise immediately (show the label where possible)
- S60 This material and its container must be disposed of as hazardous waste
- S61 Avoid release to the environment. Refer to special instructions/safety data sheets

Directive 76/464/EEC : Chromium and its compounds are List II substances
Groundwater Directive : Chromium and its compounds are List II substances

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Labeling Classification : (O Oxidiser, T+Very Toxic, N-Dangerous for the Environment) R:45-46-60-61-8-21-25-26-34-42/43-48/23-50/53; S:53-45-60-61
Relevant Regulations

- The Chemical (Hazard Information and Packaging For Supply Regulations 1994) (CHIP2); SI No.3247
- The Carriage of Dangerous Goods by Road and Rail Regulations. 1994
- Control of Substances Hazardous to Health Regulations 1994;
General COSHH ACOP L5 ISBN 0-7176-0819-0
Environmental Protection ACT (1990)
Duty of Care Regulations (Section 34 of EP Act.)
Special Waste Regulations (1980)
- EC Directives 91/155/EC and Safety Data Sheet Preparation Procedure

Other Documentation

- EH40. Occupational Exposure Limits, 1994 (Revised Annually)
- HSE. Guidance Note EH2(Rev) – Chromium and its Inorganic Compounds
- “Chromium and You” – HSE Guidance; MS(A) 16 (free issue)
- CHIP 2 Approved Supply List, 2nd Edition L61 ISBN 0-7176-0858-1
- CHIP 2 Approved Guide to Classification L63 ISBN 0-7176-0860-3
- CHIP 2 Safety Data Sheet A.C.O.P L62 ISBN 0-7176-0859-X
- Approved Carriage List [CDG (CPL) Regs 1994], L57 ISBN 0-7176-0745-3
- App. Met. for class. and pack. of dang. g. for car. by road and rail L53 ISBN 0-7176-0744-5
- International Maritime Dangerous Goods Code

16 Other Information

Additional advice on specific questions can be obtained from Soda Sanayii A.Ş. Kromsan Krom Bileşikleri Fabrikası.

This information is provided to enable customers to assess the health and safety requirements of the products. Whilst it is given in good faith, and is believed to be accurate, Soda Sanayii A.Ş. Kromsan Krom Bileşikleri Fabrikası cannot accept responsibility for loss or damage arising from use, or reliance upon this information.

The above information complies with Regulation 6 of the Chemicals (Hazard Information and Packaging for Supply) Regulations 1994 (CHIP 2)

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References

1. Respiratory Protective Equipment – a Practical Guide to Users; HSE Publication HS(G) 53.
2. Personal Protective Equipment at Work. HSE Publication – Guidance on Regulations; L25
3. Toxicity Review 21, The toxicity of chromium and inorganic chromium compounds. HSE publication.
4. ATSDR, Toxicological Profile for Chromium, April 1993
5. Petruzzelli G., et al., Water Air Soil Pollut. 32, 389-395 (1987)
6. Wrc. Report – Revised Environmental Quality Standards for Chromium in Water. DoE 2858 (P) June 1994.
7. Cary E E, Langards S, ed. Elsevier Science Publ. 49-64 (1982)
8. Benoit D A., Water Res. 10, 497 (1976)
9. Bringmann G, and Kuehn R., Z. fuer Wasser – und Abwasserforsch. 10, (3/4), 87/89 (1977)
10. Chemical Safety Data Sheets, Corrosives and Irritants, Royal Society of Chemistry, 1990, Volume 3, pp 233 – 236.
11. “Budavari, S. (ed.)”, “The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals.” Whitehouse Station, NJ: Merck and Co., Inc.,
12. “Weast, R.C. (ed.)”, “ Handbook of Chemistry and Physics”, 68th ed. Boca Raton, Florida: CRC Press Inc., 1987-1988.,p. B-130
13. “IARC”, " Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man.", Geneva: World Health Organization, International Agency for Research on Cancer, 1972-PRESENT. (Multivolume work).p. V23 215 (1980)

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14. "National Fire Protection Association", Fire Protection Guide on Hazardous Materials", 9th ed. Boston, MA: National Fire Protection Association, 1986.p. 491M-173
15. "Directive 2004/73/EC" 29th A.T.P. to EC Directive 67/548/EEC.