**Safety Data Sheet:**

# R-E-D 170KD

*Powered by* ASG Chemie

## Section 1 – Identification of Product and Company

| | |
|---|---|
| **Chemical Name** | Not available. |
| **Synonyms** | C10-H7-Na-O3-S; naphthalenesulfonic acid, sodium salt, sodium napthanelesulfonate. |
| **Chemical Formula** | C10-H8-)3-S .Na |
| **Relevant Identified Uses** | Anionic Surfactant. |
| **Other Mean of Identification** | Not available. |
| **Uses Advised Against** | This product is not recommended for other uses than those specified above. |
| **CAS Number** | 1321-69-3 |

**Supplier**

**R-E-D Industrial Products**
4 Village Park Dr.
Grove City, PA 16127
United States

**Emergency Phone Number**
Technical Information (877) 733-2281
Fax Number (877) 733-2281
Website [www.redindustrialproucts.com](www.redindustrialproucts.com)

## Section 2 – Hazards Identification

**Classification of the Substance or Mixture:**
**NFPA 704 diamond**

Note: The hazard category numbers found in GHS classification in section 2 of this SDS are NOT to be used to fill in the NFPA 704 diamond. Blue = Health, Red = Fire, Yellow = Reactivity, White = Special (Oxidizer or water reactive substances).

| | |
|---|---|
| **Classification** | Serious eye damage / eye irritation category 2B. |

**Label Elements:**

| | |
|---|---|
| **Hazard Pictogram(s)** | Not applicable. |
| **Signal Word** | Warning |

**Hazard Statements:**

| | |
|---|---|
| **H320** | Causes eye irritation. |

**Hazard(s) Not Otherwise Classified:**
Not applicable.

**Precautionary Statement(s) Prevention:**

| | |
|---|---|
| **P264** | Wash all exposed external body areas thoroughly after handling. |

**Precautionary Statement(s) Response:**

| | |
|---|---|
| **P305 + P351 + P338** | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| **P337 + P313** | If eye irritation persists: Get medical advice/attention. |

**Precautionary Statement(s) Storage:**
Not applicable.

**Precautionary Statement(s) Disposal:**
Not applicable.

## Section 3 – Composition / Information on Ingredients

**Substances:**

| CAS Number | % [Weight] | Name |
|---|---|---|
| 1321-69-3 | >98 | Sodium naphthalene sulfonate. |
| Not Available | | As. |
| 130-14-3 | | 1-naphthalenesulfonic acid, sodium salt. |
| 532-02-5 | | 2-naphthalenesulfonic acid, sodium salt. |
| The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret. | | |

**Mixtures** See section above for composition of substances.

## Section 4 – First-Aid Measures

| | |
|---|---|
| **Inhalation** | If dust is inhaled, remove from contaminated area. Encourage patient to blow nose to ensure clear passage of breathing. If irritation or discomfort persists seek medical attention. |
| **Skin Contact** | If skin contact occurs immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available). Seek medical attention if irritation persists. |
| **Eye Contact** | If this product comes into contact with the eyes wash out immediately with fresh running water. Ensure complete irrigation of the eyes by keeping the eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Seek medical attention immediately if pain persists or recurs. |
| **Ingestion** | If swallowed DO NOT induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Observe the patient carefully. Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. Give water to rinse out mouth, then provide liquid slowly and as much as patient can comfortably drink. Seek medical advice. |
| **Symptoms and Effects, Both Acute and Delayed:**<br>See Section 11. | |
| **Indication of any Immediate Medical Attention and Special Treatment Needed:**<br>Treat symptomatically. | |

## Section 5 – Firefighting Measures

| | |
|---|---|
| **Suitable Extinguishing Media** | Water spray or fog, foam, dry chemical powder, BCF (where regulations permit), $CO_2$. |

**<u>Special Hazards Arising from the Substrate or Mixture</u>:**

| | |
|---|---|
| **Fire Incompatibility** | Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result. |

**<u>Special Protective Equipment and Precautions for Firefighters</u>:**

| | |
|---|---|
| **Fire Fighting** | - Alert Fire Brigade and tell them location and nature of hazard.<br>- Wear breathing apparatus plus protective gloves.<br>- Prevent, by any means available, spillage from entering drains or water courses.<br>- Use water delivered as a fine spray to control fire and cool adjacent area.<br>- DO NOT approach containers suspected to be hot.<br>- Cool fire exposed containers with water spray from a protected location.<br>- If safe to do so, remove containers from path of fire.<br>- Equipment should be thoroughly decontaminated after use. |

| | |
|---|---|
| **Fire / Explosion Hazard** | - Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.<br>- Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).<br>- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.<br>- In the same way as gases and vapors, dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL) are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogeneous dust clouds at high temperatures (for dusts the LEL is often called the "Minimum Explosible Concentration", MEC).<br>- When processed with flammable liquids/vapors/mists, ignitable (hybrid) mixtures may be formed with combustible dusts. Ignitable mixtures will increase the rate of explosion pressure rise and the Minimum Ignition Energy (the minimum amount of energy required to ignite dust clouds - MIE) will be lower than the pure dust in air mixture. The Lower Explosive Limit (LEL) of the vapor/dust mixture will be lower than the individual LELs for the vapors/mists or dusts.<br>- A dust explosion may release of large quantities of gaseous products; this in turn creates a subsequent pressure rise of explosive force capable of damaging plant and buildings and injuring people.<br>- Usually the initial or primary explosion takes place in a confined space such as plant or machinery, and can be of sufficient force to damage or rupture the plant. If the shock wave from the primary explosion enters the surrounding area, it will disturb any settled dust layers, forming a second dust cloud, and often initiate a much larger secondary explosion. All large scale explosions have resulted from chain reactions of this type.<br>- Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.<br>- Build-up of electrostatic charge may be prevented by bonding and grounding.<br>- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.<br>- All movable parts coming in contact with this material should have a speed of less than 1-meter/sec.<br>- A sudden release of statically charged materials from storage or process equipment, particularly at elevated temperatures and/or pressure, may result in ignition especially in the absence of an apparent ignition source.<br>- One important effect of the particulate nature of powders is that the surface area and surface structure (and often moisture content) can vary widely from sample to sample, depending on how the powder was manufactured and handled; this means that it is virtually impossible to use flammability data published in the literature for dusts (in contract to that published for gases and vapors).<br>- Autoignition temperatures are often quoted for dust clouds (minimum ignition temperature (MIT)) and dust layers (layer ignition temperature (LIT)); LIT generally falls as the thickness of the layer increases.<br>- Combustion products include: carbon monoxide (CO), carbon dioxide ($CO_2$), sulfer oxides ($SO_x$), other pyrolysis products typical of burning organic materials.<br>- May emit poisonous fumes.<br>- May emit corrosive fumes. |

## Section 6 – Accidental Release Measures

| | |
|---|---|
| **Personal Precautions, Protective Equipment and Emergency Procedures** | See section 8. |
| **Environmental Precautions** | See section 12. |

**Methods and Material for Containment and Cleanup**:

| | |
|---|---|
| **Minor Spills** | - Remove all ignition sources.<br>- Clean up all spills immediately.<br>- Avoid contact with skin and eyes.<br>- Control personal contact with the substance, by using protective equipment.<br>- Use dry clean up procedures and avoid generating dust.<br>- Place in a suitable, labelled container for waste disposal. |
| **Major Spills** | Moderate hazard.<br>- CAUTION: Advise personnel in area.<br>- Alert Emergency Services and tell them location and nature of hazard.<br>- Control personal contact by wearing protective clothing.<br>- Prevent, by any means available, spillage from entering drains or water courses.<br>- Recover product wherever possible.<br>- IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other<br>- containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal.<br>- ALWAYS: Wash area down with large amounts of water and prevent runoff into drains.<br>- If contamination of drains or waterways occurs, advise Emergency Services. |
| **Personal Protective Equipment Advice is Contained in Section 8 of the this SDS.** | |

## Section 7 – Handling and Storage

**Precautions for Safe Handling**:

| | |
|---|---|
| **Safe Handling** | - Avoid all personal contact, including inhalation.<br>- Wear protective clothing when risk of exposure occurs.<br>- Use in a well-ventilated area.<br>- Prevent concentration in hollows and sumps.<br>- DO NOT enter confined spaces until atmosphere has been checked.<br>- DO NOT allow material to contact humans, exposed food or food utensils.<br>- Avoid contact with incompatible materials.<br>- When handling, DO NOT eat, drink or smoke.<br>- Keep containers securely sealed when not in use.<br>- Avoid physical damage to containers.<br>- Always wash hands with soap and water after handling.<br>- Work clothes should be laundered separately. Launder contaminated clothing before re-use.<br>- Use good occupational work practice.<br>- Observe manufacturer's storage and handling recommendations contained within this SDS.<br>- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.<br>- Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions)<br>- Minimize airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.<br>- Establish good housekeeping practices.<br>- Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds.<br>- Use continuous suction at points of dust generation to capture and minimize the accumulation of dusts. Particular attention should be given to overhead and hidden horizontal surfaces to minimize the probability of a "secondary" explosion. According to NFPA Standard 654, dust layers 1/32 in.(0.8 mm) thick can be sufficient to warrant immediate cleaning of the area.<br>- Do not use air hoses for cleaning.<br>- Minimize dry sweeping to avoid generation of dust clouds. Vacuum dust-accumulating surfaces and remove to a chemical disposal area. Vacuums with explosion-proof motors should be used.<br>- Control sources of static electricity. Dusts or their packages may accumulate static charges, and static discharge can be a source of ignition.<br>- Solids handling systems must be designed in accordance with applicable standards (e.g. NFPA including 654 and 77) and other national guidance. |

| | |
|---|---|
| | - Do not empty directly into flammable solvents or in the presence of flammable vapors.<br>- The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastics cannot be grounded, and antistatic bags do not completely protect against development of static charges.<br>Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.<br>- Do NOT cut, drill, grind or weld such containers.<br>- In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorization or permit. |
| **Other Information** | - Store in original containers.<br>- Keep containers securely sealed.<br>- Store in a cool, dry area protected from environmental extremes.<br>- Store away from incompatible materials and foodstuff containers.<br>- Protect containers against physical damage and check regularly for leaks.<br>- Observe manufacturer's storage and handling recommendations contained within this SDS.<br>For major quantities:<br>- Consider storage in bunded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams).<br>- Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities. |

**Conditions for Safe Storage, Including any Incompatibilities:**

| | |
|---|---|
| **Suitable Container** | - Polyethylene or polypropylene container.<br>- Check all containers are clearly labelled and free from leaks. |
| **Storage Incompatibility** | - Avoid reaction with oxidizing agents. |

## Section 8 – Exposure Controls / Personal Protection

**Control Parameters:**
**Occupational Exposure Limits (OEL)**
**Ingredient Data**
Not available.

| Ingredient | Original IDLH | Revised IDLH |
|---|---|---|
| 170KD | Not available. | Not available. |
| 1-naphthalenesulfonic acid, sodium salt | Not available. | Not available. |
| 2-naphthalenesulfonic acid, sodium salt | Not available. | Not available. |

**Occupational Exposure Banding**

| Ingredient | Occupational Exposure Band Rating | Occupational Exposure Band Limit |
|---|---|---|
| 1-naphthalenesulfonic acid, sodium salt | E | ≤ 0.01 mg/m$^3$ |
| 2-naphthalenesulfonic acid, sodium salt | E | ≤ 0.01 mg/m$^3$ |
| *Notes:* | Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health. | |

## Exposure Controls

**Appropriate Engineering Controls**

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:
  (a) : particle dust respirators, if necessary, combined with an absorption cartridge;
  (b) : filter respirators with absorption cartridge or canister of the right type;
  (c) : fresh-air hoods or masks
- Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.

| Type of Contaminant: | Air Speed: |
|---|---|
| Direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion). | 1-2.5 m/s (200-500 ft/min) |
| Grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion). | 2.5-10 m/s (500-2000 ft/min) |

Within each range the appropriate value depends on:

| Lower End of the Range | Upper End of the Range |
|---|---|
| 1: Room air currents minimal or favorable to capture. | 1: Disturbing room air currents. |
| 2: Contaminants of low toxicity or of nuisance value only. | 2: Contaminants of high toxicity. |
| 3: Intermittent, low production. | 3: High production, heavy use. |
| 4: Large hood or large air mass in motion. | 4: Small hood-local control only. |

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 ft/min) for extraction of crusher dusts generated 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

| | |
|---|---|
| **Individual Protection Measure, Such as Personal Protective Equipment** | 🧤 🥽 😷 🥼 🥾 |
| **Eye and Face Protection** | - Safety glasses with side shields.<br>- Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent].<br>- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59]. |
| **Skin Protection** | See Hand Protection below. |
| **Hands/Feet Protection** | NOTE:<br>- The material may produce skin sensitization in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.<br>- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.<br>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.<br>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.<br>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.<br>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:<br>· frequency and duration of contact,<br>· chemical resistance of glove material,<br>· glove thickness and<br>· dexterity<br>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).<br>· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.<br>· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.<br>· Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.<br>· Contaminated gloves should be replaced.<br>As defined in ASTM F-739-96 in any application, gloves are rated as:<br>· Excellent when breakthrough time > 480 min<br>· Good when breakthrough time > 20 min<br>· Fair when breakthrough time < 20 min<br>· Poor when glove material degrades<br>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.<br>It should be emphasized that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the<br>permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection<br>should also be based on consideration of the task requirements and knowledge of breakthrough times.<br>Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task. |

| | |
|---|---|
| | Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:<br>· Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.<br>· Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.<br>Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.<br>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present:<br>- polychloroprene<br>- nitrile rubber<br>- butyl rubber<br>- fluorocaoutchouc<br>- polyvinyl chloride<br>Gloves should be examined for wear and/ or degradation constantly. |
| **Body Protection** | See Other Protection below. |
| **Other Protection** | - Overalls<br>- P.V.C apron<br>- Barrier cream<br>- Skin cleansing cream<br>- Eye wash unit |

**Respiratory Protection**

Type -P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent).

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|---|---|---|---|
| Up to 10 x ES | P1<br>Air-line* | -<br>- | PAPR-P1<br>- |
| Up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| Up to 100 x ES | - | P3 | - |
| | | Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow
A (All classes) = Organic vapors, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide (HCN), B3 = Acid gas or hydrogen cyanide (HCN), E = Sulfur dioxide ($SO_2$), G = Agricultural chemicals, K = Ammonia ($NH_3$), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds (below 65 °C).
· Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
· The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
· Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
· Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
· Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
· Use approved positive flow mask if significant quantities of dust becomes airborne.
· Try to avoid creating dust conditions.

## Section 9 – Physical and Chemical Properties

| | | | |
|---|---|---|---|
| **Appearance** | White to yellow crystalline flakes to off-white to brown powder; mixes with water. | **Relative Density (water = 1)** | Not available. |
| **Physical State** | Divided solid | **Nanoform Solubility** | Not available |
| **Odor** | Not available | **Particle Size** | Not available |
| **Odor Threshold** | Not available | **Partition Coefficient n-octanol / Water** | Not available |
| **pH** | Not available | **Auto-Ignition Temperature (°C)** | Not available |
| **Melting / Freezing Point (°C)** | Not available | **Decomposition Temperature (°C)** | Not available |
| **Initial Boiling Point and Boiling Range (°C)** | Not available | **Viscosity (cSt)** | Not applicable |
| **Flash Point (°C)** | Not available | **Molecular Weight (g/mol)** | 230.2 |
| **Evaporation Rate** | Not applicable | **Taste** | Not available |
| **Flammability** | Not available | **Explosive Properties** | Not available |
| **Upper Explosive Limit (%)** | Not available | **Oxidizing Properties** | Not available |
| **Lower Explosive Limit (%)** | Not available | **Surface Tension (dyn/cm or mN/m)** | Not applicable |
| **Vapor Pressure (kPa)** | Negligible | **Volatile Component (%vol)** | Negligible |
| **Solubility in Water** | Miscible | **Gas Group** | Not available |
| **Vapor Density (Air = 1)** | Not applicable | **VOC g/L** | Not available |
| **Heat of Combustion (kJ/g)** | Not available | **Ignition Distance (cm)** | Not available |
| **Flame Height (cm)** | Not available | **Flame Duration (s)** | Not available |
| **Enclosed Space Ignition Time Equivalent (s/m$^3$)** | Not available | **Enclosed Space Ignition Deflagration Density (g/m$^3$)** | Not available |
| **pH as a solution (1%)** | Not available | **Nanoform Particle Characteristics** | Not available |

## Section 10 – Stability and Reactivity

| | |
|---|---|
| **Reactivity** | See Section 7. |
| **Chemical Stability** | Unstable in the presence of incompatible materials. Product is considered stable. Hazardous polymerization will not occur. |
| **Possibility of Hazardous Reactions** | See Section 7. |
| **Conditions to Avoid** | See Section 7. |
| **Incompatible Materials** | See Section 7. |
| **Hazardous Decomposition Products** | See Section 5. |

## Section 11 – Toxicological Information

| | |
|---|---|
| **Inhaled** | The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.<br>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.<br>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures. |
| **Ingestion** | Accidental ingestion of the material may be damaging to the health of the individual.<br>Ingestion of anionic surfactants may produce diarrhea, bloated stomach, and occasional vomiting. |
| **Skin Contact** | Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.<br>Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.<br>There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.<br>Anionic surfactants can cause skin redness and pain, as well as a rash. Cracking, scaling and blistering can occur.<br>Open cuts, abraded or irritated skin should not be exposed to this material.<br>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.<br>Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. |
| **Eye** | There is some evidence to suggest that this material can cause eye irritation and damage in some persons.<br>Direct eye contact with some anionic surfactants in high concentration can cause severe damage to the cornea. Low concentrations can cause discomfort, excess blood flow, and corneal clouding and swelling. Recovery may take several days. |
| **Chronic** | There is some evidence that inhaling this product is more likely to cause a sensitization reaction in some persons compared to the general population.<br>There is limited evidence that, skin contact with this product is more likely to cause a sensitization reaction in some persons compared to the general population.<br>Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis, caused by particles less than 0.5 micron penetrating and remaining in the lung.<br>Prolonged or repeated skin contact may cause degreasing, followed by drying, cracking and skin inflammation. |
| | |

| **Sodium Naphthalene Sulfonate** | **Toxicity** | **Irritation** |
|---|---|---|
| | Not available | Not available |
| **Legend** | 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances. | |

| | |
|---|---|
| **1-Naphthalenesulfonic Acid, Sodium Salt** | The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitization potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitizing substance which is widely distributed can be a more important allergen than one with stronger sensitizing potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested. |
| **Sodium Naphthalene Sulfonate & 1-Naphthalenesulfonic Acid, Sodium Salt & 2-Naphthalenesulfonic Acid, Sodium Salt** | No significant acute toxicological data identified in literature search. |
| **1-Naphthalenesulfonic Acid, Sodium Salt & 2-Naphthalenesulfonic Acid, Sodium Salt** | Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production. |

## Section 12 – Ecological Information

**Toxicity**

| **Sodium Naphthalene Sulfonate** | **Endpoint** | **Test Duration (hr)** | **Species** | **Value** | **Source** |
|---|---|---|---|---|---|
| | Not available | Not available | Not available | Not available | Not available |
| ***Legend*** | Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data. | | | | |

Surfactants are in general toxic to aquatic organisms due to their surface-active properties. Historically, synthetic surfactants were often composed of branched alkyl chains resulting in poor biodegradability which led to concerns about their environmental effects. Today however, many of them, for example those used in large amounts, globally, as detergents, are linear and therefore readily biodegradable and considered to be of rather low risk to the environment. A linear structure of the hydrophobic chain facilitates the approach of microorganism while branching, in particular at the terminal position, inhibits biodegradation. Also, the bioaccumulation potential of surfactants is usually low due to the hydrophilic units. Linear surfactants are not always preferred however, as some branching (that ideally does not hinder ready biodegradability) is often preferable from a performance point of view. The reduction in waste water of organic contaminants such as surfactants can either be a consequence of adsorption onto sludge or aerobic biodegradation in the biological step. Similar sorption and degradation processes occur in the environment as a consequence of direct release of surfactants into the environment from product use, or through effluent discharge from sewage treatment plants in surface waters or the application of sewage sludge on land. However, a major part of surfactants in waste water will be efficiently eliminated in the sewage treatment plant. Although toxic to various organisms, surfactants in general only have a limited effect on the bacteria in the biological step . There are occasions however, where adverse effects have been noticed due to e.g. large accidental releases of softeners from laundry companies.

Surfactants are in general toxic to aquatic organisms due to their surface-active properties. Historically, synthetic surfactants were often composed of branched alkyl chains resulting in poor biodegradability which led to concerns about their environmental effects. Today however, many of them, for example those used in large amounts, globally, as detergents, are linear and therefore readily biodegradable and considered to be of rather low risk to the environment. A linear structure of the hydrophobic chain facilitates the approach of microorganism while branching, in particular at the terminal position, inhibits biodegradation. Also, the bioaccumulation potential of surfactants is usually low due to the hydrophilic units. Linear surfactants are not always preferred however, as some branching (that ideally does not hinder ready biodegradability) is often preferable from a performance point of view. The reduction in waste water of organic contaminants such as surfactants can either be a consequence of adsorption onto sludge or aerobic biodegradation in the biological step. Similar sorption and degradation processes occur in the environment as a consequence of direct release of surfactants into the environment from product use, or through effluent discharge from sewage treatment plants in surface waters or the application of sewage sludge on land. However, a major part of surfactants in waste water will be efficiently eliminated in the sewage treatment plant. Although toxic to various organisms, surfactants in general only have a limited effect on the bacteria in the biological step . There are occasions however, where adverse effects have been noticed due to e.g. large accidental releases of softeners from laundry companies.
For Arylsulfonates and Their Alkyl-Substituted Derivatives:
Environmental Fate: Surfactants in this category enter the environment mainly through the discharge of sewage effluents into natural water and the application sewage sludge on land for soil fertilizing purposes.
Atmospheric Fate: Breakdown of substances in this category is dependent on the structure of the chemical, number of atoms present, and the presence of oxygen, sulphur, chlorine, or nitrogen groups.
Terrestrial Fate: Linear alkylbenzene sulfonates, (LABS), are generally biodegradable. Benzene sulfonic and p-Toluene sulfonic acid are reported to be biodegradable, in the presence of oxygen, with adapted sludge, and soil microorganisms. Most naphthalene sulfonates, (e.g. di sulfonated naphthalenes), are only slowly biodegradable.
Aquatic Fate: Benzene sulfonic acid and p-toluene sulfonic acid are not broken down by water. If these substances are released to water, they will remain in the water compartment.
Removal of benzene sufonates and naphthalene sulfonates can be expected in sewage treatment plants. However the most polar compounds, such as naphthalene disulfonates, are not removed effectively using biological treatment. Linear alkylbenzene sulfonates, (LABS), sorb to sediment, however; and the toxicity of sediment bound LABS is low compared to those in solution. Naphthalene sulfonates are strong acids and are very highly soluble in water. Monomeric naphthalene sulfonates, and their condensates, leach, in substantial amounts, to groundwater and biological transformation in the water seems to be an important mechanism in their fate. Naphthalene-1,5-disulfonate, and the oligomeric components can be expected to be persistent in surface waters.
Ecotoxicity: These substances have a tendency to concentrate in aquatic organisms as alkyl chain length increases. The effect of these substances on aquatic organisms is highly variable. The length of the alkyl chain is an important factor determining the aquatic toxicity. In general, as carbons increase in the alkyl chain, toxicity increases. These properties make these substances highly mobile and persistent in the aquatic environment. Algae have the widest range of toxicity for LABS, which ranges from toxic to moderately toxic. These substances tend to moderately toxic to other marine species. The acute toxicity of LABS to Daphnia magna generally increases with increasing alkyl chain length. Naphthalene sulfonates, and their formaldehyde condensates, have a low ecological risk, however; they are relevant water pollutants. Benzenesulfonic acid and p-toluenesulfonic acid are not toxic for aquatic species.

DO NOT discharge into sewer or waterways.

**Persistence and Degradability**

| Ingredient | Persistence: Water / Soil | Persistence: Air |
|---|---|---|
| **1-naphthalenesulfonic acid, sodium salt** | High | High |
| **2-naphthalenesulfonic acid, sodium salt** | High | High |

**Bioaccumulative Potential**

| Ingredient | Bioaccumulation |
|---|---|
| **170KD** | LOW (LogKOW = -1.78) |
| **1-naphthalenesulfonic acid, sodium salt** | LOW (LogKOW = -1.78) |
| **2-naphthalenesulfonic acid, sodium salt** | LOW (LogKOW = 0.011) |

**Mobility in Soil**

| Ingredient | Mobility |
|---|---|
| **1-naphthalenesulfonic acid, sodium salt** | LOW (Log KOC = 133.8) |
| **2-naphthalenesulfonic acid, sodium salt** | LOW (Log KOC = 131.1) |

**Other Adverse Effects**

No evidence of ozone depleting properties were found in the current literature.

## Section 13 – Disposal Considerations

**Waste Treatment Methods:**

| | |
|---|---|
| **Product / Packaging Disposal** | Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws<br>operating in their area. In some areas, certain wastes must be tracked.<br>A Hierarchy of Controls seems to be common - the user should investigate:<br>- Reduction<br>- Reuse<br>- Recycling<br>- Disposal (if all else fails)<br>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should be applied in making decisions of this type. Note that properties of a material ay change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted.<br>- Do not allow wash water from cleaning or process equipment to enter drains.<br>- It may be necessary to collect all wash water for treatment before disposal.<br>- In all cases disposal to a sewer may be subject to local laws and regulations and these should be considered first.<br>- Where in doubt contact the responsible authority. |

## Section 14 – Transport Information

**Labels Required:**

| | |
|---|---|
| **Marine Pollutant** | No. |
| **Land Transport (DOT)** | Not regulated for transport of dangerous goods. |
| **Air Transport (ICAO-IATA / DGR)** | Not regulated for transport of dangerous goods. |
| **Sea Transport (IMDG-Code / GGVSee)** | Not regulated for transport of dangerous goods. |
| **Transport in Bulk According to Annex II of MARPOL and the IBC Code:**<br>Not applicable. | |

**Transport in Bulk in Accordance with MARPOL Annex V and the IMSBC Code:**

| Product Name | Group |
|---|---|
| **170KD** | Not available. |
| **1-naphthalenesulfonic acid, sodium salt** | Not available. |
| **2-naphthalenesulfonic acid, sodium salt** | Not available. |

**Transport in Bulk in Accordance with the IGC Code**:

| Product Name | Group |
|---|---|
| **170KD** | Not available. |
| **1-naphthalenesulfonic acid, sodium salt** | Not available. |
| **2-naphthalenesulfonic acid, sodium salt** | Not available. |

## Section 15 – Regulatory Information

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

170KD is found on the following regulatory lists:
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory.

1- naphthalenesulfonic acid, sodium salt is found on the following regulatory lists:
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory.

2- naphthalenesulfonic acid, sodium salt is found on the following regulatory lists:
US Clean Air Act - Hazardous Air Pollutants.
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory.

**Additional Regulatory Information:**
Not Applicable.

**Federal Regulations**:
Superfund Amendments and Reauthorization Act of 1986 (SARA).

**Hazard Categories:**

| | | | |
|---|---|---|---|
| **Flammable (gases, aerosols, liquids or solids)** | No | **Carcinogenicity** | No |
| **Gas Under Pressure** | No | **Acute Toxicity (any route of exposure)** | No |
| **Explosive** | No | **Reproductive Toxicity** | No |
| **Self-Heating** | No | **Skin Corrosion or Irritation** | No |
| **Pyrophoric (liquid or solid)** | No | **Respiratory or Skin Sensitization** | No |
| **Pyrophoric Gas** | No | **Serious Eye Damage or Eye Irritation** | No |
| **Corrosive to Metal** | No | **Specific Target Organ Toxicity (single or repeated exposure)** | No |
| **Oxidizer (liquid, solid or gas)** | No | **Aspiration Hazard** | No |
| **Organic Peroxide** | No | **Germ Cell Mutagenicity** | No |
| **Self-Reactive** | No | **Simple Asphyxiant** | No |
| **In Contact with Water Emits Flammable Gas** | No | **Hazards Not Otherwise Classified** | No |
| **Combustible Dust** | No | | |

**US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)**
None Reported

**US. EPCRA Section 313 Toxic Release Inventory (TRI) (40 CFR 372)**
None Reported

**Additional Federal Regulatory Information**
Not Applicable

**State Regulations**
US. California Proposition 65 - None Reported

**Additional State Regulatory Information**
Not Applicable

**National Inventory Status**:

| National Inventory | Status |
|---|---|
| **Australia – AIIC / Australia Non-Industrial Use** | Yes |
| **Canada – DSL** | Yes |
| **Canada – NDSL** | No (170KD) |
| **China – IECSC** | Yes |
| **Europe – EINEC / ELINCS / NLP** | Yes |
| **Japan – ENCS** | Yes |
| **Korea – KECI** | Yes |
| **New Zealand – NZIoC** | Yes |
| **Philippines – PICCS** | Yes |
| **USA – TSCA** | All chemical substances in this product have been designated as TSCA Inventory 'Active'. |
| **Taiwan – TCSI** | Yes |
| **Mexico – INSQ** | No (1-naphthalenesulfonic acid, sodium salt; 2-naphthalenesulfonic acid, sodium salt) |
| **Vietnam – NCI** | Yes |
| **Russia – FBEPH** | No (CD-70; 1-naphthalenesulfonic acid, sodium salt) |
| ***Legend*** | Yes = All CAS declared ingredients are on the inventory.<br>No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration. |

## Section 16 – Other Information

**Other information**:
Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

**Definitions and abbreviations:**
PC－TWA: Permissible Concentration-Time Weighted Average
PC－STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
ES: Exposure Standard

OSF: Odor Safety Factor
NOAEL: No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odor Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index
DNEL: Derived No-Effect Level
PNEC: Predicted no-effect concentration
MARPOL: International Convention for the Prevention of Pollution from Ships
IMSBC: International Maritime Solid Bulk Cargoes Code
IGC: International Gas Carrier Code
IBC: International Bulk Chemical Code
AIIC: Australian Inventory of Industrial Chemicals
DSL: Domestic Substances List
NDSL: Non-Domestic Substances List
IECSC: Inventory of Existing Chemical Substance in China
EINECS: European Inventory of Existing Commercial chemical Substances
ELINCS: European List of Notified Chemical Substances
NLP: No-Longer Polymers
ENCS: Existing and New Chemical Substances Inventory
KECI: Korea Existing Chemicals Inventory
NZIoC: New Zealand Inventory of Chemicals
PICCS: Philippine Inventory of Chemicals and Chemical Substances
TSCA: Toxic Substances Control Act
TCSI: Taiwan Chemical Substance Inventory
INSQ: Inventario Nacional de Sustancias Químicas
NCI: National Chemical Inventory
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

## Disclaimer

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of 170KD as it is commonly used, the sheet cannot anticipate and provide all the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. In particular, the data furnished in this sheet does not address hazards that may be posed by other materials mixed with 170KD. Users should review other relevant material safety data sheets before working with 170KD.

SELLER MAKES NO WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY R-E-D industrial products LLC. Except that the product shall conform to contracted specifications. The information provided herein was believed by R-E-D Industrial Products LLC to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as to product delivered or for non-delivery of product, and whether based on contract, breach of warranty, negligence, or otherwise shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach or warranty, negligence or otherwise.

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material safety data sheets, training and access to written records.