Serological Research Institute (SERI)

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers: R540 Xmas Tree Stain

1.2 Recommended Use: Forensic, Research

1.3 Company Info: Serological Research Institute (SERI), 3053 Research Drive, Richmond, CA 94806 USA

Phone: 1-510-223-7374 Fax: 1-510-222-8887

1.4 Emergency Phone: 911, American Association of Poison Control Centers: 1-800-222-1222

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Skin sensitisation (Category 1), H317, Serious eye damage (Category 1) H318, Skin irritation (Category 2) H315, Eye irritation (Category 2A) H319, Specific target organ toxicity - single exposure (Category 3) Respiratory system H335, Acute toxicity, Oral (Category 4) H302

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram 

Signal word: Danger, Warning

Hazard statement(s)

H302 Harmful if swallowed.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statement(s)

P261 Avoid breathing dust/fume/gas/mist/vapors/spray.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/ eye protection/ face protection.

P272 Contaminated work clothing should not be allowed out of the workplace.

P280 Wear protective gloves.

P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Continue rinsing.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

P310 Immediately call a POISON CENTER or doctor/ physician.

P312 Call a POISON CENTER or doctor/ physician if you feel unwell.

P321 Specific treatment (see supplemental first aid instructions on this label).

P330 Rinse mouth.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P363 Wash contaminated clothing before reuse.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - Explosive when dry.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixtures:

Aluminum sulfate hydrate, Formula : $Al_2O_{12}S_3 \cdot xH_2O$ Molecular weight : 342.15 g/mol, CAS-No. : 17927-65-0, EC-No.: 233-135-0

Indigo carmine, Synonym: Acid Blue 74, Indigo carmine, Indigo-5,5′-disulfonic aciddisodium salt, Formula : $C_{16}H_8N_2Na_2O_8S_2$ $C_{16}H_8N_2Na_2O_8S_2$, Molecular weight : 466.35 g/mol, CAS-No. : 860-22-0, EC-No. : 212-728-8

Nuclear Fast Red, Synonym: 4-Amino-9,10-dihydro-1,3-dihydroxy-9,10-dioxo-2-anthracenesulfonic acidsodium salt, Formula : $C_{14}H_8NNaO_7S$, Molecular Weight : 357.27 g/mol, CAS-No. : 6409-77-4, EC-No. : 229-088-0

Picric acid solution, Synonyms : 2,4,6-Trinitrophenol, Molecular weight : 229.10 g/mol, CAS-No. 88-89-1, EC-No. 201-865-9

3.2 Hazardous Components: Aluminum sulphate hydrate, Eye Dam. 1; H318, Disodium 5,5'-(2-(1,3-dihydro-3-oxo-2H-indazol-2-ylidene)-1,2-dihydro-3H-indol-3-one)disulphonate, Acute Tox. 4; H302, Disodium 1-amino-2,4-dihydroxy-9,10-dihydro-9,10-dioxoanthracene-3-sulphonate, Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; H315, H319, H335, Picric Acid CAS-No. 88-89-1 EC-No. . 201-865-9 Index-No 609-009-00-X Expl. 1.1; Acute Tox. 3; Skin Sens. 1; H201, H301 + H311 + H331, H317

3.3 Component Percentage/Concentration has been withheld as a trade secret.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Wash off with soap and plenty of water. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed: The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed: No data available

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture: Aluminum oxide, Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Sodium oxides

5.3 Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information: No data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions: Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections: For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Soak up with inert absorbent material and dispose of as hazardous waste. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities: Keep container tightly closed in a dry and well-ventilated place. Light sensitive. Keep wetted with water.

7.3 Specific end use(s): Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters: Components with workplace control parameters: Component: Aluminum sulphate hydrate, CAS-No. 17927-65-0, Value: TWA, Control parameters: 2.000000mg/m3, Basis: USA. NIOSH Recommended Exposure Limits, Picric Acid 88-89-1 TWA 0.100000 mg/m3 USA. ACGIH Threshold Limit Values (TLV) Remarks Eye irritation Dermatitis Skin sensitization TWA 0.1 mg/m3 USA. ACGIH Threshold Limit Values (TLV) Eye irritation Dermatitis Skin sensitization

TWA 0.1 mg/m3 USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Skin designation TWA 0.100000 mg/m3 USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants Skin designation TWA 0.100000mg/m3 USA. NIOSH Recommended Exposure Limits An OSHA Class A Explosive (1910.109). Potential for dermal absorption ST 0.300000mg/m3 USA. NIOSH Recommended Exposure Limits An OSHA Class A Explosive (1910.109). Potential for dermal absorption

8.2 Exposure controls

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment: Eye/face protection, Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without

touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact, Material: Nitrile rubber, Minimum layer thickness: 0.11 mm, Break through time: 480 min, Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact, Material: Nitrile rubber, Minimum layer thickness: 0.11 mm, Break through time: 480 min, Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection, Impervious clothing, Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection, For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure, Do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form: Liquid, Color: Red, Green, b) Odor: No data available, c) Odor Threshold: No data available, d) pH: No data available, e) Melting point/freezing point: No data available, f) Initial boiling point and boiling range: No data available, g) Flash point: No data available, h) Evaporation rate: No data available, i) Flammability (solid, gas): No data available, j) Upper/lower flammability or explosive limits: No data available, k) Vapor pressure: No data available, l) Vapor density: No data available, m) Relative density: No data available, n) Water solubility: No data available, o) Partition coefficient: noctanol/water: No data available, p) Auto-ignition temperature: No data available, q) Decomposition temperature: No data available, r) Viscosity: No data available, s) Explosive properties: No data available, t) Oxidizing properties: No data available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No data available, Chemical stability: Stable under recommended storage conditions., Possibility of hazardous reactions: No data available, Conditions to avoid: Picric acid forms salts with many metals some of which are rather sensitive to heat, friction, or impact, e.g., lead, iron, zinc, nickel, copper, etc., and should be considered dangerously sensitive. The salts formed with ammonia and amines, and the molecular complexes with aromatic hydrocarbons, etc, are in general not so sensitive. Contact of picric acid with concrete floors may form the friction-sensitive calcium salt. Dry mixtures of picric acid and aluminum powder are inert, but the addition of water causes ignition after a delay dependent upon the quantity added. Storage conditions: records of purchase dates should be maintained for each container. Material older than 2 years should be disposed. Inspect and add water every six months as needed. Rotate containers to distribute water every three months. Incompatible materials: Strong oxidizing agents, Strong bases, Reducing agents, Heavy metals, Heavy metal salts, Ammonia, Hazardous decomposition products: Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects, Acute toxicity: LD50 Oral - Rat - > 2,000 mg/kg, Inhalation: No data available, Dermal: No data available, Skin corrosion/irritation: Skin – Rabbit Result: No skin irritation, Serious eye damage/eye irritation, Eyes – Rabbit Result: Severe eye irritation, Respiratory or skin sensitization: No data available, Germ cell mutagenicity: Histidine reversion (Ames) Hamster Fibroblast, Cytogenetic analysis Mouse Cytogenetic analysis Mouse Sister chromatid exchange, Carcinogenicity: Carcinogenicity - Rat – Subcutaneous Tumorigenic: Neoplastic by RTECS criteria. Tumorigenic: Tumors at site or application. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.: ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. Reproductive toxicity: No data available, Specific target organ toxicity - single exposure: Inhalation - May cause respiratory irritation, Specific target organ toxicity - repeated exposure: No data available, Aspiration hazard: No data available, Additional Information: RTECS: DU3000000, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Stomach - Irregularities - Based on Human Evidence, Discoloration of the skin., Picric acid dust causes sensitization dermatitis. This usually occurs on the face, especially around the mouth and the sides of the nose; the condition progresses from edema, through the formation of papules and vesicles, to ultimate desquamation. Inhalation of high concentrations of dust has caused unconsciousness, weakness, muscle pain, and kidney problems. Swallowing picric acid may cause a bitter taste, headache, dizziness, nausea, vomiting, and diarrhea. High doses may cause destruction of the red blood cells and damage to the kidneys and liver with blood in the urine.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity: No data available, 12.2 Persistence and degradability: No data available, 12.3 Bioaccumulative potential: No data available, 12.4 Mobility in soil: No data available, 12.5 Results of PBT and vPvB assessment PBT/vPvB assessment not available as chemical safety assessment not required/not conducted, 12.6 Other adverse effects: No data available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods, Product Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Contaminated packaging: Dispose of as unused product. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

SECTION 14: TRANSPORT INFORMATION

DOT (US) UN number: 3077 Class: 9 Packing group: III Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Aluminum sulphate hydrate) Reportable Quantity (RQ): 5000 lbs Poison Inhalation Hazard: No, IMDG Not dangerous goods, IATA, Not dangerous goods

SECTION 15: REGULATORY INFORMATION

SARA 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302. SARA 311/312 Hazards: Acute Health Hazard, Chronic Health Hazard, SARA 313 Components: The following components are subject to reporting levels established by SARA Title III, Section 313: Picric Acid CAS-No. 88-89-1 Revision Date 2007-07-01.

Massachusetts Right To Know Components Aluminum sulphate hydrate CAS-No. 17927-65-0 Revision Date 1993-04-24, Picric Acid CAS-No. 88-89-1 Revision Date 2007-07-01

Pennsylvania Right To Know Components Aluminum sulphate hydrate CAS-No. 17927-65-0 Revision Date 1993-04-24, Disodium 5,5'-(2-(1,3-dihydro-3-oxo-2H-indazol-2-ylidene)-1,2-dihydro-3H-indol-3-one)disulphonate 860-22-0, Disodium 1-amino-2,4-dihydroxy-9,10-dihydro-9,10-dioxoanthracene-3-sulphonate 6409-77-4, Water CAS-No. 7732-18-5 Picric Acid 88-89-1 Revision Date 2007-07-01

New Jersey Right To Know Components Aluminum sulphate hydrate CAS-No. 17927-65-0 Revision Date 1993-04-24, Disodium 5,5'-(2-(1,3-dihydro-3-oxo-2H-indazol-2-ylidene)-1,2-dihydro-3H-indol-3-one)disulphonate 860-22-0, Disodium 1-amino-2,4-dihydroxy-9,10-dihydro-9,10-dioxoanthracene-3-sulphonate 6409-77-4, Water CAS-No. 7732-18-5 Picric Acid 88-89-1 Revision Date 2007-07-01

California Prop. 65 Components This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3. Eye Dam. Serious eye damage, Expl. Explosives, H201 Explosive; mass explosion hazard. H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled, H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H319 Causes serious eye irritation. H335 May cause respiratory irritation. Skin Irrit. Skin irritation, STOT SE Specific target organ toxicity - single exposure, Skin Sens. Skin sensitization, Acute Tox. Acute toxicity H302 Harmful if swallowed.

HMIS Rating, Health hazard: 2, Chronic Health Hazard: *, Flammability: 0, Physical Hazard 0

NFPA Rating, Health hazard: 2, Fire Hazard: 0, Reactivity Hazard: 0

Revision Date: 06-2015

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