



N3B-Los Alamos
1200 Trinity Drive, Suite 150
Los Alamos, New Mexico 87544
(505) 661-5918

GROUND WATER

NOV 7 2019

BUREAU



Environmental Management
Los Alamos Field Office
P.O. Box 1663, MS M984
Los Alamos, New Mexico 87545
(505) 665-5658/FAX (505) 606-2132

Date: NOV 07 2019
Refer To: N3B-19-0342

Steve Pullen, Section Manager
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 5469
Santa Fe, NM 87502-5469

Subject: Notice of Intent to Conduct a Tracer Study at Los Alamos National Laboratory

Dear Mr. Pullen:

In accordance with Subsection A of 20.6.2.1201 New Mexico Administrative Code (NMAC), the U.S. Department of Energy Environmental Management Los Alamos Field Office (EM-LA) and Newport News Nuclear BWXT-Los Alamos, LLC (N3B) are filing this notice of intent (NOI) to conduct a tracer study at Los Alamos National Laboratory (LANL). The study will be conducted to estimate the volumetric flow rate(s) of groundwater passing through the screened intervals of monitoring wells R-28 and R-42 in the chromium project area at LANL. It is a follow up assessment to similar work conducted in these same two wells in previous years.

The tracer study will utilize either potable water or groundwater extracted from each well as the source of water for mixing the tracer, as described in the enclosed NOI form. In accordance with 20.6.2.3101.A(2) NMAC, "...if the existing concentration of any water contaminant in ground water exceeds the standard of Section 20.6.2.3103 NMAC, no degradation of ground water beyond the existing concentration will be allowed." Under the source-water option that utilizes groundwater extracted from each well, reintroducing the small volume of previously extracted water at the location where it was extracted will not cause any degradation of groundwater.

Enclosed is a completed New Mexico Environment Department Ground Water Quality Bureau NOI form. Attachments 1 and 2 provide information to support the NOI.

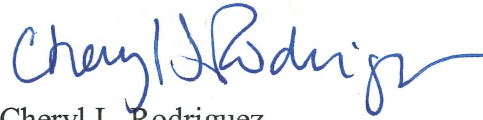
If you have any questions, please contact Christian Maupin at (505) 695-4281 (christian.maupin@em-la.doe.gov) or Cheryl Rodriguez at (505) 257-7941 (cheryl.rodriguez@em.doe.gov).

Sincerely,



Elizabeth Lowes
Program Manager
Environment, Safety and Health
N3B-Los Alamos

Sincerely,



Cheryl L. Rodriguez,
Program Manager, FPD-II
Environmental Management
Los Alamos Field Office

Enclosure(s): One hard copy – Completed New Mexico Environment Department Ground Water Quality Bureau Notice of Intent to Discharge form (EM2019-0425) and attachments to the form

cc (letter and enclosures[s] emailed):

Andrew Romero, NMED-GWQB
John Kieling, NMED-HWB
Shelly Lemon, NMED-SWQB
Lee Bishop, EM-LA
Selena Fox, EM-LA
Sarah Eli Gilbertson, EM-LA
Cristopher Hall, EM-LA
Douglas Hintze, EM-LA
Thomas McCrory, EM-LA
Jessica Moseley, EM-LA
David Nickless, EM-LA
Robert Pfaff, EM-LA
Hai Shen, EM-LA
William Alexander, N3B
Emily Day, N3B
Mary Erwin, N3B
Erich Evered, N3B
Debby Holgerson, N3B
Danny Katzman, N3B
Kim Lebak, N3B
Joseph Legare, N3B
Frazer Lockhart, N3B
Elizabeth Lowes, N3B
Pamela Maestas, N3B
Christian Maupin, N3B
Glenn Morgan, N3B
Jason Moore, N3B
Lester Patten, N3B
Gary Pool, N3B

Ashley Pryor, N3B
Bruce Robinson, N3B
Tashia Vigil, N3B
Steve White, N3B
Brinson Willis, N3B
Jeff Yarbrough, N3B
emla.docs@em.doe.gov
N3Brecords@em-la.doe.gov
Public Reading Room (EPRR)
PRS Database



New Mexico Environment Department
Ground Water Quality Bureau

Ground Water Quality Bureau
Notice of Intent to Discharge

For Department use Only:

Agency Interest Number _____
PRD Assigned _____

1. Name and mailing address of person proposing to discharge (Responsible Person):

Steve S. White

Work Phone: (505) 309-1370

Newport News Nuclear BWXT-Los Alamos, LLC

Cell/Home Phone: (505) 309-1370

1200 Trinity Drive, Suite 150

Fax: Not Applicable

Los Alamos, NM 87544

Email: steve.white@em-la.doe.gov

2. Name and Position of person Completing Form:

Christian T. Maupin

Work Phone: (505) 695-4281

Regulatory Compliance

Cell/Home Phone: (505) 695-4281

Environmental Professional

Fax: Not Applicable

Email: christian.maupin@em-la.doe.gov

3. Name of facility:

Los Alamos National Laboratory (LANL)

4. Physical location of the discharge (if applicable, give street address, township, range, section, distance from closest town or landmark, directions to facility, location map):

LANL Technical Area 05 in Township 19N, Range 6E, Section 24. Attachment 1 contains a location map of the project site.

5. Type of operation generating the discharge (e.g., agricultural facility, domestic wastewater discharge, industrial discharge, mining operation, etc.):

This borehole dilution tracer study will be conducted as an aquifer test to estimate the volumetric flow rate(s) of groundwater passing through the screened intervals of monitoring wells R-42 and R-28 in the chromium project area at LANL. The volumetric flow rate estimates will be compared with previous estimates obtained from borehole dilution tracer tests conducted in R-42 and R-28 in 2014. Extracted groundwater from each well or potable water from the Los Alamos County municipal supply will be mixed with tracer before deployment into the wells. The use of extracted groundwater from each well is preferred because it should minimize geochemical perturbations to ongoing studies at each well, which are being conducted to evaluate the effects of the remediation amendments on local aquifer geochemistry.

6. Source(s) of the discharge. Describe how the wastewater, sludge, or other discharges processed and/or disposed at your facility are generated. Identify all sources. Attach additional pages if needed:

A total of 350 gal. of extracted groundwater or potable water will be mixed with up to 5 g of sodium 1,5-naphthalene disulfonate tracer in a tank at each well location. The tracer solution(s) will then be separately deployed into R-42 and R-28 through transducer tubes installed in each well, while extracting groundwater at the same rate as the injection rate. The extracted groundwater will be collected into on-site purge water containers. The tracer injections will be stopped when the tracer concentration in the return line from each well is steady and approximately the same as in



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the respective tracer makeup/mixing tank. At this point, all the water being pumped from the well will be directed into the transducer tube used for tracer injection, creating a closed loop for circulating the tracer-bearing water between the screened interval and the surface.

Attachment 2 provides the safety data sheet for the sodium 1,5-naphthalene disulfonate.

7. Expected contaminants in the discharge (e.g., nitrate-nitrogen, metals, organic compounds, salts, etc.) Include estimated concentration if known, and copies of results of laboratory analyses, if available:

The naphthalene sulfonate tracer will be introduced at the quantities specified in Section 6 above. Contaminant concentrations for each well are shown below:

	Cr (µg/L)	Fe (µg/L)	Mn (µg/L)	NO3 (N) (mg/L)	SO4 (mg/L)
R-42	~3	~5030	~3050	< 1	~188
R-28	~3	~6130	~2490	< 1	~45

8. Describe all components of wastewater processing, treatment, storage, and disposal system (e.g., pre-treatment units, impoundments(s), septic tank/leachfield, etc.). Include sizes, site layout map, plans, and specifications, etc. if available:

Regional monitoring wells: R-28 and R-42. Sodium 1,5-naphthalene disulfonate tracer. Extracted groundwater with contaminant concentrations specified in Section 7 above. Potable water from the Los Alamos County municipal supply.

9. Estimated maximum daily discharge volume in gallons per day. Provide water usage records or system sizing criteria if available:

Discharge at each well location will be 350 gal. of water, equal to the volume of tracer solution injected, plus any water that is purged after the test to recover tracer and reduce geochemical perturbations. All water purged from the system will be characterized and a hazardous waste determination will be performed based upon the results.

10. Estimated depth to ground water (ft): ~ 950 ft Source of information: Recent water level data

11. Current Total Dissolved Solids Concentration in Groundwater: approximately 400 mg/L

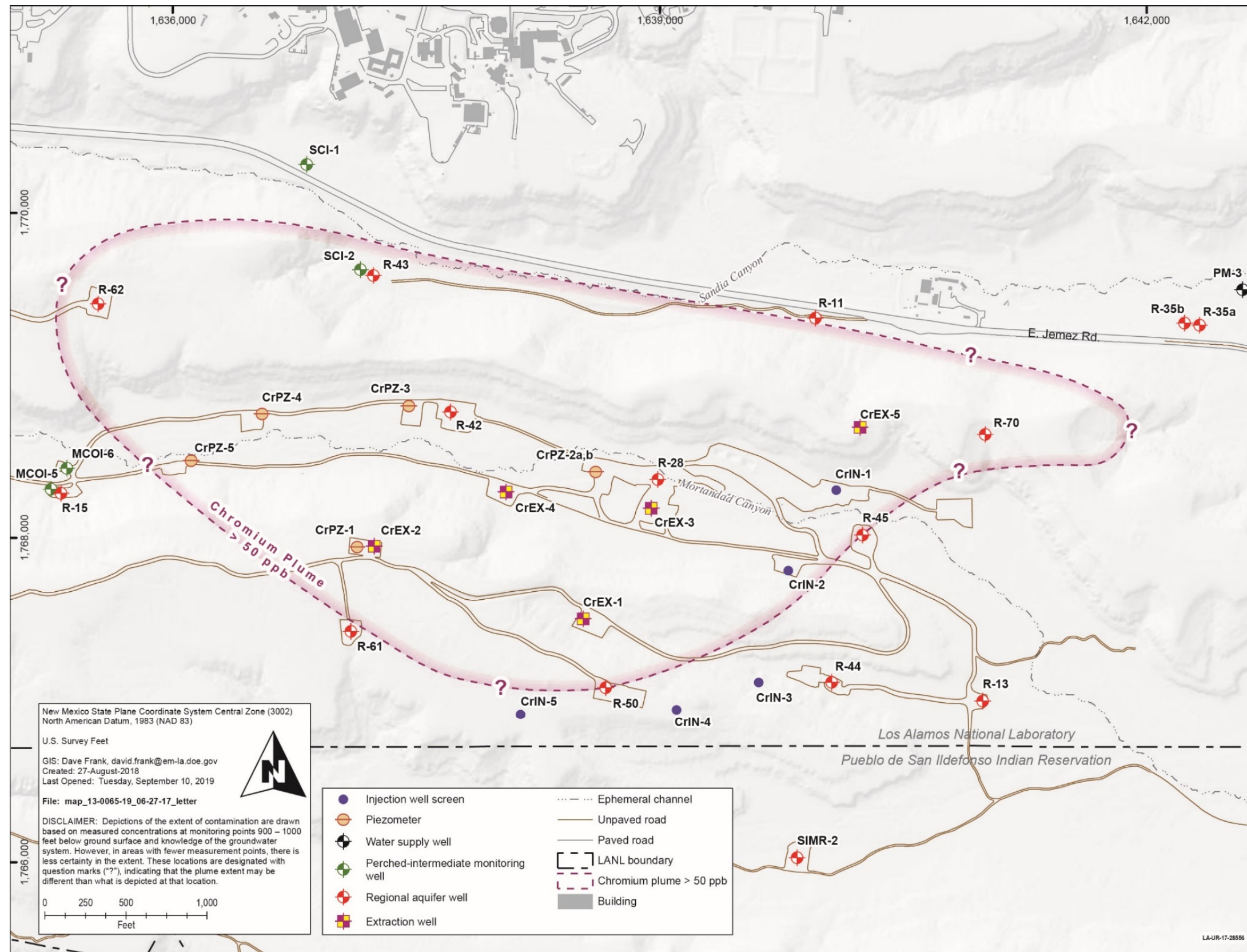
Signature: Elizabeth Lowes Date: 10-31-2019
Printed name: ELIZABETH LOWES Title: Environment, Safety & Health Program Manager

Please return this form to:
NMED Ground Water Quality Bureau
P.O. Box 5469
Santa Fe, New Mexico 87502-5469

Telephone: 505-827-2900
Fax: 505-827-2965

Attachment 1

Location Map of Project Site



Note: Locations of monitoring wells, piezometers, extraction wells, and injection wells are also shown.

Attachment 2

Safety Data Sheets for the Proposed Tracers

SAFETY DATA SHEET

Version 3.3
Revision Date 06/25/2014
Print Date 08/09/2018

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Sodium 1,5-naphthalenedisulfonate dibasic

Product Number : 70240

Brand : Aldrich

CAS-No. : 1655-29-4

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 1,5-Naphthalenedisulfonic aciddisodium salt

Formula : $C_{10}H_6Na_2O_6S_2$

Molecular Weight : 332.26 g/mol

CAS-No. : 1655-29-4

EC-No. : 216-732-0

No ingredients are hazardous according to OSHA criteria.

No components need to be disclosed according to the applicable regulations.

4. FIRST AID MEASURES

4.1 Description of first aid measures

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact

Wash off with soap and plenty of water.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

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

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

Carbon oxides, Sulphur oxides, Sodium oxides

5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information

no data available

6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing vapours, mist or gas.
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

Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE**7.1 Precautions for safe handling**

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.

hygroscopic Keep in a dry place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 Control parameters****Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

8.2 Exposure controls**Appropriate engineering controls**

General industrial hygiene practice.

Personal protective equipment

Eye/face protection

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.

Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: powder Colour: beige
b) Odour	no data available
c) Odour 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) Vapour pressure	no data available
l) Vapour density	no data available
m) Relative density	no data available
n) Water solubility	no data available
o) Partition coefficient: n-octanol/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

9.2 Other safety information

no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

no data available

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitisation

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

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

no data available

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Additional Information

RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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

13. DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Disodium naphthalene-1,5-disulphonate

CAS-No.
1655-29-4

Revision Date

New Jersey Right To Know Components

Disodium naphthalene-1,5-disulphonate

CAS-No.
1655-29-4

Revision Date

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.

16. OTHER INFORMATION**HMIS Rating**

Health hazard: 0

Chronic Health Hazard:

Flammability: 0

Physical Hazard 0

NFPA Rating

Health hazard: 0

Fire Hazard: 0

Reactivity Hazard: 0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation

Product Safety – Americas Region

1-800-521-8956

Version: 3.3

Revision Date: 06/25/2014

Print Date: 08/09/2018