Safety Data Sheet
TOLUENE

SECTION 1: Identification

1.1 GHS Product identifier

Product name	Toluene
Brand	Caseway
Substance name	Toluene
EC no.	203-625-9
CAS no.	108-88-3
Index no.	601-021-00-3

1.2 Other means of identification

SDS Number: CIP-034
UN/ID No: 1294

1.3 Recommended use of the chemical and restrictions on use

All proper and legal purposes.

1.4 Supplier's details

Name	Caseway Industrial Products, Inc.
Address	3487 Highland Drive Bay City MI 48706 United States
Telephone	19893919992
Fax	19893919994
email	support@casewayproducts.com

1.5 Emergency phone number

INFOTRAC (Contract: 106140)
North America: 1-800-535-5053
International: 1-352-323-3500

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200)

- Skin corrosion/irritation, Cat. 2
- Specific target organ toxicity (repeated exposure), Cat. 2
- Specific target organ toxicity (single exposure), Cat. 3
- Aspiration hazard, Cat. 1
- Flammable liquids, Cat. 2
- Toxic to reproduction, Cat. 1A

2.2 GHS label elements, including precautionary statements

Pictogram

Signal word **Danger**

Hazard statement(s)

H225	Highly flammable liquid and vapor
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H360	May damage fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure

Precautionary Statement(s) - Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash face, hands, and any exposed skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statement(s) - Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P314	Get medical advice/attention if you feel unwell.
P331	Do NOT induce vomiting.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

Fire

P370+P378	In case of fire: Use water-fog, foam, carbon dioxide (CO2), dry chemical powder to extinguish.

Storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3 Other hazards which do not result in classification

Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.

Statement regarding ingredients of unknown toxicity

100% of the substance consists of component(s) of unknown acute inhalation toxicity.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name	CAS No.	EC No.	Index No.	Concentration (weight)
TOLUENE	108-88-3	203-625-9	601-021-00-3	100 %

Formula C7H8

Molecular weight	92.14
Other names / synonyms	'; BENZENE, METHYL-; Benzene, methyl-; Toluene; Toluene; Benzene, methyl-; Toluene ; METHANE, PHENYL-; NCI-C07272; ANTISAL 1A; UN 1294; RCRA WASTE NUMBER U220; TOLU-SOL; TOLUOL; METHYLBENZOL; PHENYLMETHANE; METHACIDE; METHYLBENZENE; Toluene

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

General advice	Take off all contaminated clothing immediately. If exposed or concerned: get medical advice/attention. If you feel unwell, seek medical advice (show label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautionary measures to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.
If inhaled	Immediately leave the contaminated area; take deep breaths of fresh air. If symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop, call a physician, and be prepared to transport the victim to a hospital.
In case of skin contact	Immediately flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. If symptoms such as redness or irritation develop, call a physician, and be prepared to transport the victim to a hospital for treatment.
In case of eye contact	First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. Immediately transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.
If swallowed	DO NOT INDUCE VOMITING. Rinse mouth. Immediately call a hospital or poison control center. Be prepared to transport the victim to a hospital if advised by a physician. If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. IMMEDIATELY transport the victim to a hospital.
Personal protective equipment for first-aid responders	Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Respirator Recommendation. Wear proper protective equipment as necessary, (e.g. gloves, face protection, skin protection, protective clothing).

4.2 Most important symptoms/effects, acute and delayed

Most important symptoms/effects, acute and delayed: Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness or dizziness. Headache. Nausea, vomiting. Direct contact with the eyes may cause temporary irritation. Skin irritation. May cause redness and pain. Prolonged exposures may cause chronic effects.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Provide general supportive measures and treat symptomatically.

Thermal Burns: Flush with water immediately. While flushing, remove clothes which do not adhere to the affected area. Call an ambulance. Continue flushing during transportation to the hospital. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Water fog. Foam. Carbon dioxide (CO2). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media: Do not use water jet as this may spread the fire.

5.2 Specific hazards arising from the chemical

Vapors may form explosive mixtures with air. Vapors may travel a considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminates. Material will float and may ignite on the surface of water. During fire, gases hazardous to health may be formed.

5.3 Special protective actions for fire-fighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. In case of fire and/or explosion do not breathe fumes. Move containers away from fire area if you can do so without risk.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.

6.2 Environmental precautions

Avoid discharge into drains, water courses, or onto the ground. Use appropriate containment to avoid environmental contamination. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for reuse.

Reference to other sections

Personal Protection: Section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Obtain special instructions before use. Do not handle until safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Minimize fire risks from flammable and combustible materials Including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists and sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Take precautionary measures against static discharges. All equipment used when handling this product must be grounded. Use

non-sparking tools and explosion-proof equipment. Avoid breathing mist/vapors. Avoid contact with eyes. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

7.2 Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks, and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in a cool, dry place out of direct sunlight. Store in a tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. Toluene (CAS: 108-88-3)
PEL-TWA (Inhalation): 200 ppm (OSHA)
PEL-C (Inhalation): 300 ppm; 500 ppm (Peak) [10 min maximum in an 8 hr shift] (OSHA)

PEL-TWA (Inhalation): 100 ppm (375 mg/m3) (NIOSH)
REL-ST (Inhalation): 150 ppm (560 mg/m3) (NIOSH)
IDLH (Inhalation): 500 ppm (NIOSH)

TLV® (Inhalation): 20 ppm [2006]; USA (ACGIH)

PEL-TWA (Inhalation): 10 ppm (37 mg/m3) (Cal/OSHA)
PEL-ST (Inhalation): 150 ppm (560 mg/m3) - SKIN (Cal/OSHA)
PEL-C (Inhalation): 500 ppm Ceiling (Cal/OSHA)

8.2 Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases, or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear antistatic protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots, and gloves. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection
Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Thermal hazards
Wear thermal protective clothing when necessary.

Environmental exposure controls
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters, or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid
Appearance	Colorless, liquid.
Color	CLEAR
Odor	Characteristic, TOLUENE.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	-140 °F (-95.56 °C)
Boiling point or initial boiling point and boiling range	231.08 °F (110.6 °C)
Flash point	40.0 °F (4.4 °C)
Evaporation rate	Not available.
Flammability	Flammable liquid
Lower and upper explosion limit/flammability limit	Not available.
Vapor pressure	Not available.
Relative vapor density	3.1
Density and/or relative density	0.87 g/ml
Solubility	0.7 g/l at 74 °F
Partition coefficient n-octanol/water (log value)	2.73
Auto-ignition temperature	896 °F (480 °C)
Decomposition temperature	Not available.
Kinematic viscosity	0.31 mm2/s
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

Particle characteristics
Molecular Formula: C7-H8
Molecular Weight: 92.14 g/mol

Supplemental information regarding physical hazard classes
Heat of combustion (NFPA): 28.4 kJ/g

Further safety characteristics (supplemental)
Density: 7.26 lbs/gal
Dynamic Viscosity: 0.27 mPa.s (212 °F (100 °C))
Specific Gravity: 0.87
Surface Tension: 28.93 mN/m (68 °F (20 °C))

SECTION 10: Stability and reactivity

10.1 Reactivity
The product is stable and non-reactive under normal conditions of use, storage, and transport.

10.2 Chemical stability
Material is stable under normal conditions.

10.3 Possibility of hazardous reactions
Hazardous polymerization does not occur.

10.4 Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.

10.5 Incompatible materials
Strong oxidizing agents.

10.6 Hazardous decomposition products
No hazardous decomposition products are known.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
LD50 Dermal (Rabbit): 12120 mg/kg
LD50 Oral (Rat): 2.6 g/kg

May be fatal if swallowed and enters airways.

Skin corrosion/irritation
Causes skin irritation.

Serious eye damage/irritation
Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization
Due to partial or complete lack of data the classification is not possible.

Germ cell mutagenicity
Due to partial or complete lack of data the classification is not possible.

Carcinogenicity
IARC Monographs. Overall Evaluation of Carcinogenicity: 3 - Not classifiable as to its carcinogenicity to humans.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053): Not listed
US. National Toxicology Program (NTP) Report on Carcinogens: Not listed.
ACGIH: A4 - Not classifiable as a human carcinogen.

Reproductive toxicity
May damage fertility or the unborn child.

STOT-single exposure
May cause drowsiness or dizziness.

STOT-repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional information
Information on likely routes of exposure
Inhalation: May cause drowsiness or dizziness, headache, nausea, vomiting.
Skin contact: Causes skin irritation
Eye contact: Direct contact with eyes may cause temporary irritation.
Ingestion: Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.

Symptoms related to the physical, chemical and toxicological characteristics: Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Skin irritation. May cause redness and pain.

SECTION 12: Ecological information

Toxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Crustacea
EC50 Water flea (Daphnia magna): 5.46 - 9.83 mg/l, 48 hours

Fish
LC50 coho salmon, silver salmon (Oncorhynchus kisutch): 8.11 mg/l, 96 hours

Persistence and degradability
No data is available on the degradability of this product.

Bioaccumulative potential
Partition coefficient n-octanol / water (log Kow): 2.73

Mobility in soil
No data available.

Endocrine disrupting properties
No data available.

Other adverse effects
The product contains volatile organic compounds which have a photochemical ozone creation potential.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Dispose of contents/container in accordance with local, regional, national, and international regulations.

Packaging disposal
Since empty containers may retain product residue, follow labels warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Waste treatment
Do not incinerate sealed containers. If discarded, this product is considered a RCRA ignitable waste, D001.

Sewage disposal
No data available.

Other disposal recommendations
Hazardous waste code: D001: Waste Flammable material with a flash point <140

SECTION 14: Transport information

DOT (US)
UN Number: UN1294
Class: 3
Packing Group: II
Proper Shipping Name: Toluene

IMDG
UN Number: UN1294
Class: 3
Packing Group: II
EMS Number: F-E, S-D
Proper Shipping Name: Toluene

IATA
UN Number: UN1294
Class: 3
Packing Group: II
Proper Shipping Name: Toluene

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Toxic Substances Control Act

TSCA Section 12(b) Export Notification (40 CFR 707, Subpart. D)
Not regulated.

CERCLA Hazardous Substances List (40 CFR 302.4)
TOLUENE (CAS 108-88-3): Listed.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical: Yes

Classified hazard categories
Flammable (gases, aerosols, liquids, or solids)
Skin corrosion or irritation
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)
Aspiration Hazard
Hazard not otherwise classified (HNOC)

SARA 313 (TRI reporting)
TOLUENE (CAS: 108-88-3): 100% by wt.

Other Federal Regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
TOLUENE (CAS: 108-88-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act
Contains component(s) regulated under the Safe Drinking Water Act.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)
Hazardous substance. Priority pollutant. Toxic pollutant.

Drug Enforcement Administration (DEA), List 2, Essential Chemicals (21 CFR 1320.02(b) and 1310.04(f)(2) and Chemical Code Number
TOLUENE (CAS: 108-88-3): 6594

Drug Enforcement Administration (DEA), List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))
TOLUENE (CAS: 108-88-3): 35%WV

DEA Exempt Chemical Mixtures Code Number
TOLUENE (CAS: 108-88-3): 6594

California Proposition 65: California Safe Drinking Water and Toxic Enforcement Act of 1986 (Prop 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))
TOLUENE (CAS: 108-88-3)

California Prop. 65 components
Chemical name: Toluene
CAS number: 108-88-3
01/01/1991 - Developmental toxicity
08/07/2009 - Female reproductive toxicity (de-listed 03/07/2014)
01/01/1991 - developmental
08/07/2009 - female

California Prop. 65 Components
This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
Chemical name: Toluene
CAS number: 108-88-3

U.S. State Right To Know Components

Product	California	Massachusetts	New Jersey	New York	Pennsylvania	Rhode Island
Toluene (CAS:108-88-3)	Listed	Listed	Listed	Listed	Listed	Listed

International Inventories

Product	TSCA	DSL /NDSL	EINECS /ELINCS	ENCS	IECSC	PICCS	AICS	NZIoC	TW	KECI
Toluene (CAS:108-88-3)	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present

Legend
P – Present on list
X – Not present on list
TSCA – United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL – Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS – European Inventory of Existing Chemical Substances or European List of Notified Chemical Substances
ENCS – Japanese ENCS (Existing & New Chemical Substances) Inventory
IECSC – Inventory of Existing Chemicals Substances Produced or Imported in China (IECSC)
PICCS – Philippines Inventory of Chemicals and Chemical Substances
AICS – Australian Inventory of Chemical Substances)
NZIoc – New Zealand Inventory of Chemicals
TW – Taiwan National Chemical Inventory
KECI – Korean Existing Chemicals Inventory

HMIS Rating

Toluene	
HEALTH	* 3
FLAMMABILITY	3
PHYSICAL HAZARD	0
PERSONAL PROTECTION	

NFPA Rating

SECTION 16: Other information

Issue Date: 2022-08-24
Notes: First Issue.

16.1 Further information/disclaimer

The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information provided herein. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical resources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency. Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their handling and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.

16.2 Preparation information

Sources of key data used to compile the Safety Data Sheet: Internal technical data, data from raw material SDSs, EPA CompTox Chemical Dashboard (comptox.epa.gov), EPA Substance Registry Services (SRS), OSHA Occupational Chemical Database (https://www.osha.gov/chemicaldata), OSHA 29CFR 1910.1200 Hazard Communication (https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1200), European Chemicals Agency (ECHA) C&L Inventory Database (echa.europa.eu), CAMEO Chemicals (cameochemicals.noaa.gov), Code of Federal Regulations CFR Title 49 (https://www.ecfr.gov/current/title-49), California Proposition 65 (https://www.p65warnings.ca.gov/), California Proposition 65 List (https://oehha.ca.gov/proposition-65/proposition-65-list), National Library of Medicine (https://pubchem.ncbi.nlm.nih.gov/), TSCA Chemical Substances Inventory (https://www.epa.gov/tsca-inventory/how-access-tsca-inventory), OECD eChem Portal Search Results (https://www.echemportal.org/echemportal/substance-search).