



Using SDS to Help Guide TUR Decisions

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Role of SDS in TUR Planning

- Identify hazards of current chemicals to determine whether opportunity exists
- Examine and compare hazards of potential substitutions
- Information for calculations and reporting

Agenda

Effectively use SDS and other info sources for TUR planning and reporting

- SDS Refresher and Evaluation
- SDS Role in Reporting
- Additional Resources for Chemical Hazard Info

What's your level of
experience with SDS?

SDS Background Info

OSHA Hazard Communication Standard (HazCom)

- Updated in 2012
 - SDS & label requirements
 - Adoption of Globally Harmonized System of Classification & Labeling (GHS)

MSDS vs SDS

- MSDS obsolete as of 2015
 - Suppliers required to provide SDS for active products
 - Discontinued products pre-2015 may not have SDS

SDS Format

- **Section 1:** Product and company identification
- **Section 2:** Hazard(s) identification
- **Section 3:** Composition/information on ingredients
- **Section 4:** First-aid measures
- **Section 5:** Fire-fighting measures
- **Section 6:** Accidental release measures
- **Section 7:** Handling and storage
- **Section 8:** Exposure controls/personal protection
- **Section 9:** Physical and chemical properties
- **Section 10:** Stability and reactivity
- **Section 11:** Toxicological information
- **Section 12:** Ecological information
- **Section 13:** Disposal considerations
- **Section 14:** Transport information
- **Section 15:** Regulatory information
- **Section 16:** Other information

GHS

- Developed by United Nations
 - Systematic approach to identifying and communicating chemical hazards
 - Created as “building blocks” to allow countries flexibility during adoption
 - “Purple Book” updated every 2 years

GHS

- H is for Harmonized...?
 - Building block approach allows for discrepancies between countries
 - i.e., US did not adopt environmental endpoints
 - Countries adopted own additional hazards in some cases
 - i.e., US HNOC - combustible dust, pyrophoric gases, simple asphyxiants

GHS Basic Elements

- Hazard class and category
 - Physical 17
 - Health 10
 - Environmental 2
- Pictogram (9)
- Signal word (2)
- Hazard statement
 - H###
- Precautionary statements
 - P###



Section 2: Hazard ID/GHS - Example

- Hazard class and category
 - i.e., Skin irritation, Category 2

- Pictogram



- Signal word
 - WARNING

- Hazard statements

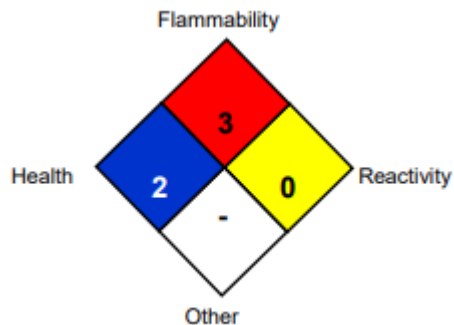
- H315: Causes skin irritation

- Precautionary statements

- P264: Wash hands thoroughly after handling
- P280: Wear protective gloves/protective clothing/eye protection/face protection
- P302+P352: IF ON SKIN: wash with plenty of soap and water
- P332+P313: If skin irritation occurs: get medical advice/attention
- P362+P364: Take off contaminated clothing and wash it before reuse

NFPA/HMIS vs GHS

- GHS category numbers and HMIS/NFPA ratings are OPPOSITE
 - GHS: *low* number = higher hazard
 - NFPA/HMIS: *high* number = higher hazard



HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

| | |
|---------------------------|---|
| HEALTH HAZARD (BLUE) | 2 |
| FLAMMABILITY HAZARD (RED) | 3 |
| PHYSICAL HAZARD (YELLOW) | 0 |
| | |

SDS: The Good & The Bad

What Are the Positive Aspects of SDS?

Benefits of SDS

- Provide basic product and company information
- Arranged in standardized format
- Aid workplace compliance efforts
- Essential to emergency situations

What Challenges Do You Have Regarding SDS?

Limitations of the SDS

- Age
- Quality
- Consistency
- Completeness
- Proprietary Ingredients

Evaluating SDS

General

- Read the entire doc
- Age
 - SDS vs MSDS
 - Ideally < 3 years old
- Country formats
 - Should be US but worth checking
 - Check heading, GHS classification
- Contact manufacturer for SDS update

Component ID

- Section 3, to start
 - Hazardous components at $\geq 0.1\%$ / 1% must be listed
- Always check Section 15
 - Components that may not be listed in section 3
- Trade secrets
 - Potential clues in Sections 8, 5/10, 14
 - Search for different country format SDS

Hazard ID

- Section 2, to start
 - Presentation of hazards can vary by country!
- Search for other country format SDS
- Check other sections
 - Section 11 – Test data/interpretation
 - Section 12 – Environmental hazards not adopted in US
 - Section 13/14 – Different classification criteria, but may raise other hazards to consider

Activity #1

Evaluate the following SDS and discuss with your group: LOCTITE AA 3381; Green Earth Glass Cleaner

- How old is the SDS? Is a newer one available?
- What country was it written for?
- What are the components? Any clues beyond section 3?
- What are the hazards? Any endpoints for further evaluation?

SDS: Role in Reporting

Mixtures & Identifying Substances

- How to handle % ranges for reporting and planning
- CAS#'s/Categories/Isomers
 - E.g. Diisocyanates/Metals
- Does the SDS represent the mixture or individual components
- How to handle CBI/proprietary substances

Determining Concentrations in Mixtures or Other Trade Name Products

- Determine whether thresholds were exceeded for listed chemicals in a mixture (40 CFR § 372.30(b)(3)):
 - **Exact concentration - use concentration provided:**
 - *SDS = 25%* *Use 25%*
 - **Upper bound - use upper limit**
 - *SDS < 25%* *Use 25%*
 - **Range - use the midpoint of the range**
 - *SDS: 30 – 50%* *Use 40%*
 - **Lower bound - subtract out other known constituents, create a range, and use the midpoint of range**
 - *SDS: >75% toxic chemical* *Use 87.5% (top of range = 100%)*
 - *SDS: >75% toxic chemical* *Use 80% (range =*
15% water *75% - 85%)*

TRI chemical concentration calculation when lower bound concentration is zero

If a facility only knows the upper bound concentration of a TRI chemical in a mixture, the upper bound must be used for threshold determinations. If a facility knows both the lower and upper bound concentrations of the TRI chemical, EPA recommends that the midpoint of the two concentrations be used for threshold determinations. If a covered facility receives a material safety data sheet (MSDS) from its supplier that states that the concentration of the TRI substance in the mixture ranges between zero and 10 percent, can the facility estimate the concentration of the TRI chemical in the mixture by using zero as the lower bound?

TRI Chemical Concentration calculation when lower bound concentration is zero!

No, a facility cannot estimate the concentration of a TRI chemical in a mixture by using zero as a “lower bound” concentration, even if the facility receives an MSDS from a supplier stating that the concentration of a TRI substance is between zero and a stated upper bound. If an MSDS shows zero as the “lower bound” of the concentration range, then the lower bound concentration is unknown, and the facility must use the provided upper bound for threshold determinations (40 CFR §372.30(b)(3)(ii)). Therefore, in the scenario above, since the facility only knows that the upper bound is 10 percent, it must calculate the amount of TRI chemical in the mixture based on the 10 percent concentration.

Which TRI/TURA chemicals are reportable: De Minimis

- Chemical A (de minimis 1.0%), 0-1%
- Chemical B (de minimis 1.0%), 0-1.75%
- Chemical C (de minimis 0.1%), 0- 0.09%
- Chemical D (de minimis 0.1%), 0-0.1%
- Chemical E (PBT), 0-10%
- Chemical F (PBT), 0-30%

When in doubt:

- Call the supplier
- Call the manufacturer
- Certificates of analysis
- Purchasing or procurement specifications

When the range straddles the Di Minimis

Scenario 2: As in the previous example, manganese is present in a mixture, of which 8,000,000 pounds is processed. The SDS states the mixture contains 0.2 percent to 1.2 percent manganese. The amount of mixture subject to reporting (at or above *de minimis* limit) is:

$$[(8,000,000) \times (1.2\% - 0.9\%)] \div (1.2\% - 0.2\%)$$

The average concentration of manganese that is not exempt (at or above *de minimis* limit) is:

$$(1.2\% + 0.9\%) \div (2)$$

Therefore, the amount of manganese that is subject to threshold determinations and release and other waste management estimates is:

$$\left[\frac{(8,000,000) \times (1.2\% - 0.9\%)}{(1.2\% - 0.2\%)} \right] \times \left[\frac{(1.2\% + 0.9\%)}{(2)} \right] = 26,400 \text{ pounds}$$

= 26,400 pounds manganese (which is above the processing threshold for manganese)

Additional Sources of Chemical Hazard Info

When you need more information...

- Resources for further investigation
 - Good screening tools: ChemHAT, PubChem
 - EPA ChemView and SRS
 - REACH Database
 - eChem Portal
 - TURI Library
 - Toxplanet
 - Pharos



Check out the Environmental,
Health and Safety Data Resources
Guide at:
guides.turi.org/beyondmsds

ChemHAT.org

ChemHAT.org

Chemical Hazard and Alternatives Toolbox



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[Safer Chemicals](#)

[For Workers](#)

[Breast Cancer](#)

[Safer Families](#)

Search chemical name or CAS #

FIND

SEARCH SUGGESTIONS

- Type the name or CAS number into the box and touch Find or Enter to begin search.
- If you don't know exactly what you are looking for, try searching on part of the chemical name, e.g. "methyl". You can then select the best match from the results list.
- To search by CAS number, be sure to include the dashes, e.g., 50-00-0.

Environmental Health News

Documents spur investigation of climate sceptic.

Climate skeptic's fossil fuel funding puts spotlight on journal conflict policies.

Everything you wanted to know about the bee die-off.

[More](#)

Play the
ChemHAT.org
card game!



ChemHAT.org Designed *for* workers *by* workers.

A PROJECT OF

BLUEGREEN
ALLIANCE

WITH THE SUPPORT OF



Dichloromethane (methylene chloride)

CAS: 75-09-2

How can this chemical affect my health?

Stronger effect / evidence ... Weaker effect / evidence



Acute (Short Term) Effects [How do we know?](#)



Toxic to Humans & Animals – Can be fatal on contact, ingestion or inhalation for humans and other mammals.



Irritates the Eyes – Can cause irritation or serious damage to the eye.



Irritates the Skin – Can cause irritation or serious damage to the skin.

Chronic (Long Term) Effects [How do we know?](#)



Cancer – Can cause or increase the risk of cancer.



Endocrine Disruption – Can interfere with hormone communication between cells which controls metabolism, development, growth, reproduction and behavior (the endocrine system).



Brain/Nervous System Harm – Can cause damage to the nervous system including the brain.



Other Health Effects – Can cause serious damage on contact or ingestion.



PBT (Persistent Bioaccumulative Toxicant) – Does not break down readily from natural processes, accumulates in organisms concentrating as it moves up the food chain, and is harmful in small quantities.



Breast Cancer – Known to increase mammary gland tumors in animals.

Inherent Hazards [How do we know?](#)



Restricted List – This chemical is on a list from an authoritative body recommending that its use be avoided.

How does this chemical impact the environment? [How do we know?](#)



Immediate Harm to Aquatic Ecosystems – A single exposure may result in severe biological harm or death to fish or other aquatic organisms.



Long-Term Harm to Aquatic Ecosystems – Long term exposure may result in irreversible harm to fish or other aquatic organisms.



Harmful to Land Ecosystems – Can cause harm to land based plants, animals or microorganisms.

What safer alternatives are available for this chemical?

[Find case studies related to substitutions for this chemical](#) in SubSPORT, the substitution support portal.

TOXNET Transition

The screenshot shows the PubChem website homepage. At the top left is the NIH logo and the text "U.S. National Library of Medicine National Center for Biotechnology Information". Below this is the PubChem logo and navigation links: "About", "Blog", "Submit", and "Contact". A notification banner reads "PubChem presents at the American Chemical Society National Meeting in San Diego (August 25-29, 2019) Read More >". The main heading is "Explore Chemistry" with the subtext "Quickly find chemical information from authoritative sources". A search bar is present with a magnifying glass icon. Below the search bar are several search suggestions: "Try aspirin EGFR C9H8O4 57-27-2 C1=CC=C(C=C1)C=O InChI=1S/C3H6O/c1-3(2)4/h1-2H3". There are four radio buttons for search filters: "Use Entrez" (unchecked), "Compounds" (checked), "Substances" (unchecked), and "BioAssays" (unchecked). At the bottom are four icons with labels: "Draw Structure" (pencil and structure), "Upload ID List" (upload arrow), "Browse Data" (grid), and "Periodic Table" (periodic table grid).

- Toxnet will be transitioning to PubChem, PubMed, and Bookshelf
- HSDB, ChemIDplus, TOXLINE, and DART will continue to be updated and integrated into PubChem
- Haz-Map, TOXMAP, TRI, CTD, Household Products Database, IRIS, and ITER will all be ***retired in December 2019***

EPA ChemView - Home

EPA United States Environmental Protection Agency

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Pollution Prevention and Toxics

You are here: EPA Home » Chemical Safety and Pollution Prevention » Pollution Prevention and Toxics » Existing Chemicals » ChemView Introduction » ChemView

ChemView

Information and data sources made available via ChemView are currently undergoing system upgrades or maintenance. During this time, some pages of the site (searchable databases, pdfs, etc.) may not be available. We apologize for the inconvenience and thank you for your patience and understanding.

Use this database to get information on chemical health and safety data received by EPA and EPA's assessments and regulatory actions for specific chemicals under the Toxic Substances Control Act (TSCA). ChemView contains no confidential business information (CBI).

If you do not receive results for a particular chemical, it does not mean EPA does not have information on that chemical; the data may not be posted yet but will be available in the future as EPA continues to populate the database.

- Learn more and find additional information about EPA's efforts in assessing and managing chemicals
- Read the ChemView User's Guide and Web Service Information
- To continuously improve ChemView, Contact Us with your feedback.

Data last updated on 9/21/2016

CHEMICALS | **ENDPOINT** | OTHER SOURCES | DASHBOARD

Select Search Criteria:

Select Chemical Search Criteria and desired Output Selections.

Generate Results | Export Results | Clear All Entries

Chemical Information | Clear Chemical Information

starts with | exact | contains

Chemical name or Chemical Identifier

Enter a full or partial chemical name

Use

Select a use

Significant New Use Notification

Select a SNUR use

Show 10 entries

Showing 0 to 0 of 0 entries

Output Categories:

Data Submitted to EPA:
These are the studies submitted by industry

EPA Assessments:
These reflect EPA evaluations

EPA Actions:

E-mail Url | Print | Help | Export

Search:

First | Previous | Next | Last

EPA ChemView - Results

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- Learn more and find additional information about EPA's efforts in assessing and managing chemicals
- Read the ChemView [User's Guide and Web Service Information](#)
- To continuously improve ChemView, [Contact Us](#) with your feedback.

CHEMICALS **ADVANCED SEARCH** OTHER SOURCES

Select Search Criteria:

Select Chemical Search Criteria and desired [Output Selections](#).

Generate Results Export Results Clear All Entries

Chemical Information

Clear Chemical Information

Chemical Name or Chemical Identifier

starts with exact contains

Enter a full or partial chemical name

Already selected:

[remove] starts with : 50-00-0

[remove] 50-00-0

Use

Select a use

Significant New Use Notification ^f

Select a SNUR use

Chemical Group

Select a chemical group

Chemical Category

Select a chemical category

◀

Show 10 entries

E-mail Url Print Contact Us Export

Data last updated on 11/3/2019

Search:

| Structure | Chemical Name/ Chemical Identifier | Data Submitted to EPA | EPA Assessments | EPA Actions | Manufacturing, Processing, Use or Release |
|---|---------------------------------------|--|--|--|--|
|  | Formaldehyde 50-00-0 |  View for All |  View for All |  View for All |  View for All |

Showing 1 to 1 of 1 entries

First Previous 1 Next Last

Output Categories:

Data Submitted to EPA:

These are the studies submitted by industry

EPA Announcements:

These reflect EPA evaluations

EPA Actions:

These are regulatory or non-regulatory actions based on an assessment of the chemical. The assessment is based on data and/or an analog of the chemical

See ChemView User Interface Guide on the Home page for detailed information on results

How can The Substance Registry System (SRS) help me?

- The Substance Registry System (SRS) can help you discover information about substances that are tracked or regulated at EPA.
- It can point to sources at EPA where you can find additional data about the substance.
- And the SRS can tell you which synonym for a substance is used by that program office.
- SRS is a one-stop resource for finding health and safety fact sheets or other information about a substance developed by other federal, state, or international organization.
- You can access SRS at: www.epa.gov/srs

EPA – SRS - Home

Substance Registry Services (SRS)

Search and Retrieve

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Substance Search

Chemical and Substance Resources

Find a Substance

Search by Substance Name

(Enter a Substance Name ex: Chemical Name, Biological Name, etc.)

Contains Begins With Exact Match

Substance Identifier

Please enter a CAS Number, TSN, EPA Identifier, Internal Tracking Number, or Alternate Identifier

[Advanced Search](#)

[Search by List](#)

[Search by PMN & Accession Numbers](#)

Substance Registry Services

- [About SRS](#)
- [References](#)

The Chemical and Substance Resources search is part of the Substance Registry Services (SRS), EPA's authoritative resource for information about chemicals, biological organisms and other substances tracked or regulated by EPA.

Search for Services

Keywords:

Resource Types:

Business Service
Commercial Tool
Custom Tool
Data Dictionary
Data Exchange

[SRS Automated Services](#)

Health Resources



- [New Jersey RTK Fact Sheets](#)
- [ToxFAQs](#)
- [NIOSH Occupational Health Guidelines for Chemical Hazards](#)

Popular Resources



- [Envirofacts](#)
- [Enforcement and Compliance History Online \(ECHO/IDEA\)](#)
- [MyEnvironment](#)

EPA – SRS – Results

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Substance Registry Services (SRS)

Substance Search Results

Search Results

Enter keyword(s) below to refine search

Filter Search Reset Filter

Back to Home Page

Search Terms (Exact Match): ; Substance Identifier: 26040-51-7; Substance Type: All;

1 results found (Export options: Excel | XML | PDF | RTF)

1 of 1 pages Results per page: 25

Search and Retrieve Substance Report

| <input type="checkbox"/> Substance Name | <input type="checkbox"/> Common Name | <input type="checkbox"/> CAS Number | <input type="checkbox"/> Taxonomic Serial Number |
|---|---------------------------------------|-------------------------------------|--|
| <input type="checkbox"/> 1,2-Benzenedicarboxylic acid, 3,4,5,6-tetrabromo-, 1,2-bis(2-ethylhexyl) ester | Bis(2-ethylhexyl) tetrabromophthalate | 26040-51-7 | |


1 results found (Export options: Excel | XML | PDF | RTF)

Back to Home Page

Search

- Substance Search
- Advanced Search
- Search by List
- Search by PMN & Accession Numbers

EPA – SRS – Results (cont.)

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Bis(2-ethylhexyl) tetrabromophthalate

[Back to Search Results](#) | [Back to Home Page](#) | [View and print a PDF of this substance's Details Report](#)

Substance Details

| | |
|---------------------------|--|
| Internal Tracking Number: | 236828 |
| Substance Status: | Approved |
| Substance Type: | Chemical Substance |
| Systematic Name: | 1,2-Benzenedicarboxylic acid, 3,4,5,6-tetrabromo-, 1,2-bis(2-ethylhexyl) ester |
| CAS Number: | 26040-51-7 |
| EPA Registry Name: | Bis(2-ethylhexyl) tetrabromophthalate |
| Molecular Weight: | 706.15 |
| Molecular Formula: | C ₂₄ H ₃₄ Br ₄ O ₄ |

[Show More Metadata](#)

For more information about the substance, you may click one of the links below to take you to the relevant section:

- [Health information about this substance](#)
- [Program and regulatory information about this substance, including links to EPA applications/systems, statutes/regulations, or other sources that track or regulate this substance](#)
- [Information about related substances](#)

Health and Other Scientific Information

The following list includes links related to the selected substance. Some of the following links exit EPA's site [\(EPA\)](#).

References

- [ChemID Plus Advanced Link](#)
- [ChemID Plus Link](#)

EPA – SRS – Results (cont.)

Program and Regulatory Information

Statutes/Regulations

Below are the EPA applications/systems, statutes/regulations, or other sources that track or regulate this substance. This table shows how each list refers to the substance. To view more metadata about the specific Synonym, click on the Synonym.

| ↕ Statutes/Regulations | ↕ Synonym | ↕ Synonym Quality | ↕ Effective Date | ↕ End Date |
|-----------------------------------|--|-------------------|------------------|------------|
| 2016 CDR TSCA Inv | Bis(2-ethylhexyl) tetrabromophthalate | Valid | | |
| TSCA Inv | 1,2-Benzenedicarboxylic acid, 3,4,5,6-tetrabromo-, 1,2-bis(2-ethylhexyl) ester | Valid | | |

EPA Applications/Systems

Below are the EPA applications/systems, statutes/regulations, or other sources that track or regulate this substance. This table shows how each list refers to the substance. To view more metadata about the specific Synonym, click on the Synonym.

| ↕ EPA Applications/Systems | ↕ Synonym | ↕ Synonym Quality | ↕ Effective Date | ↕ End Date |
|-------------------------------|--|-------------------|------------------|------------|
| 2012 CDR | 1,2-Benzenedicarboxylic acid, 3,4,5,6-tetrabromo-, bis(2-ethylhexyl) ester | Valid | | |
| 2012 CDR | Phthalic acid, tetrabromo-, bis(2-ethylhexyl) ester | Valid | | |
| GCES | Phthalic acid, tetrabromo-, bis(2-ethylhexyl) ester | Valid | | |
| HPVC List | Phthalic acid, tetrabromo-, bis(2-ethylhexyl) ester | Valid | | |
| HPVIS | 1,2-Benzenedicarboxylic acid, 3,4,5,6-tetrabromo-, bis(2-ethylhexyl) ester | Valid | | |
| TSCA Inv Syns | Phthalic acid, tetrabromo-, di(2-ethylhexyl) ester | Valid | | |

Other Sources

Below are the EPA applications/systems, statutes/regulations, or other sources that track or regulate this substance. This table shows how each list refers to the substance. To view more metadata about the specific Synonym, click on the Synonym.

| ↕ Other Sources | ↕ Synonym | ↕ Synonym Quality | ↕ Effective Date | ↕ End Date |
|---------------------------|--|-------------------|------------------|------------|
| CIJS98 | 1,2-Benzenedicarboxylic acid, 3,4,5,6-tetrabromo-, bis(2-ethylhexyl) ester | Valid | | |
| CA Index | 1,2-Benzenedicarboxylic acid, 3,4,5,6-tetrabromo-, 1,2-bis(2-ethylhexyl) ester | Valid | 01/20/2010 | |
| ChemIDStd | Bis(2-ethylhexyl) tetrabromophthalate | Valid | | |
| CIJS94 | Phthalic acid, tetrabromo-, bis(2-ethylhexyl) ester | Valid | | |
| CIJS02 | 1,2-Benzenedicarboxylic acid, 3,4,5,6-tetrabromo-, bis(2-ethylhexyl) ester | Valid | | |
| CIJS90 | Phthalic acid, tetrabromo-, bis(2-ethylhexyl) ester | Valid | | |

Ad Hoc List

| ↕ Ad Hoc List | ↕ Synonym | ↕ Synonym Quality | ↕ Effective Date | ↕ End Date |
|---------------|-----------|-------------------|------------------|------------|
|---------------|-----------|-------------------|------------------|------------|

ECHA REACH Database & OECD eChem Portal

Substance Search

Substance Search Search Result Step 1 Search Result Step 2

Search history

- You searched for
Number: 26040-51-7
Participants: ACToR, AGRITOX, APVMA-CR, CCR, CESAR, Combined Exposures, ECHA C&L inventory, ECHA CHEM, EFSA Open Food Tox, EnviChem, EPA HHBP, EPA OPPALB, GDL, GHS-J, GSBL, HPVIS, HSDB, HSNOC, IGS, INCHEM, INERIS-PSC, J-CHECK, JECDB, NICNAS Other, NICNAS PEC, OECD HPV, OECD SIDS IUCLID, SIDS UNEP, SPIN, UK CCRMP Outputs, US EPA IRIS, US EPA SRS
- You selected
Number: 26040-51-7

Ways to proceed

- You can click a link in the "Result" column to see the substance in the participants database
- You can select one or several substances in the "Check" column and continue with a Property Search. If no check box is displayed, information on that data source cannot be found via the property search.

| Check | Number | Name | Remark | Level | Result | Source |
|--------------------------|----------------------------|---|--------|-------|--------|-----------------------|
| <input type="checkbox"/> | 26040-51-7 (CAS Number) | Bis(2-ethylhexyl) 3,4,5,6-tetrabromophthalate (Unknown) | | | | ACToR |
| <input type="checkbox"/> | 26040-51-7 (CAS Number) | Phthalic acid, tetrabromo-, bis(2-ethylhexyl) ester (Unknown) | | | | SPIN |
| <input type="checkbox"/> | 26040-51-7 (CAS Number) | 1,2-Benzenedicarboxylic acid, 3,4,5,6-tetrabromo-, bis(2-ethylhexyl) ester (Unknown) | | | | HPVIS |
| <input type="checkbox"/> | 26040-51-7 (CAS Number) | Bis(2-ethylhexyl)tetrabr | | | | GDL |

General information

Classification & Labelling & PBT assessment

Manufacture, use & exposure

Physical & Chemical properties

Environmental fate & pathways

Ecotoxicological information

Toxicological information

Analytical methods

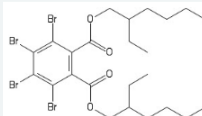
Guidance on safe use

Assessment reports

Reference substances

Identification Compositions Registration data Administrative data Contact: Persons responsible for the SDS

Identification



Display Name: Bis(2-ethylhexyl) tetrabromophthalate

EC Number: 247-426-5

EC Name: Bis(2-ethylhexyl) tetrabromophthalate

CAS Number: 26040-51-7

Molecular formula: C24H34Br4O4

IUPAC Name: 1,2-bis(2-ethylhexyl) 3,4,5,6-tetrabromobenzene-1,2-dicarboxylate

Type of substance

Composition: mono-constituent substance

Origin: organic

Other names

Trade names: UNIFLEX FRP 45

Total tonnage band

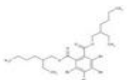
Total range: 100 - 1 000 tonnes per annum

REACH

Bis(2-ethylhexyl) tetrabromophthalate

Substance description Scientific properties Brief Profile - Last updated: 20/10/2016 Print

Substance identity



EC / List name: Bis(2-ethylhexyl) tetrabromophthalate
IUPAC name: bis(2-ethylhexyl) 3,4,5,6-tetrabromophthalate
Other names

EC / List no.: 247-426-5
CAS no.: 26040-51-7
Index number:
Molecular formula: C24H34Br4O4

SMILES: CCCC(C)COC(=O)c1c(Br)c(Br)c(Br)c1C(=O)OCC(C)C


InChI: InChI=1/C24H34Br4O4/c1-5-9-11-15/2-31-3-31-22(20)17-18(20)(26)(22)(20)27(19)(17)(25)(24)(30)(32-14-16)(8-4)(12-10-6-2)/h15-16H,5-14H,2,1-4H3

Type of substance: Mono constituent substance
Origin: Organic
Registered composition: 2
Of which contains: 0 impurities relevant for classification
0 additives relevant for classification
Substance Listed: EINECS (European Inventory of Existing Commercial chemical Substances) List

Substance identity
Hazard classification & labelling
Properties of concern
Regulatory activities
About this substance
Registrants/suppliers
Other names
[Back to top](#)

Hazard classification & labelling

According to the notifications provided by companies to ECHA in REACH registrations no hazards have been classified.



Additionally, the classification provided by companies to ECHA in CLP notifications identifies that this substance causes serious eye irritation.

Breakdown of all 19 C&L notifications submitted to ECHA

Eye Irrit. 2: 100%
Not Classified: 0%

Legend:
 Harmonised Classification
 REACH registration dossier notifications
 CLP notifications

At least one notifier has indicated that an impurity or an additive present in the substance impacts the notified classification.

Databases Available Through the TURI Library



toxplanet SEARCH DOCUMENTS OPTIONS HELP ADMIN MANAGER [Logout](#)

EXPERTIndex™ Search

Search Term: 71-43-2

Starts With
 Exact Match
 Contains

[Chemical Identity](#) ChemEXPERT™ ReproEXPERT™ ListEXPERT™ PoisonEXPERT™ REACH Registrations
[C & L Inventory](#) DrugEXPERT™ TOXLINE® Special ECIS TSCATS MSDSonline® MyEXPERT™

Chemical Identity Search Results

Name of Substance: Benzene

CAS Registry Number: 71-43-2

Molecular Formula: C6-H6

Other Registry Numbers: 174973-66-1; 54682-86-9; 1053658-43-7

SMILES: c1ccccc1

Synonyms: AI3-00808; (6)Annulene; Benzeen [Dutch]; Benzen [Polish]; Benzene; Benzin; Benzin (Obs.); Benzine; Benzine (Obs.); Benzo; Benzol 90; Benzole; Benzolene; Benzolo [Italian]; Bicarburet of hydrogen; Carbon oil; Caswell No. 077; CCRIS 70; Coal naphtha; Cyclohexatriene; EINECS 200-755-7; EPA Pesticide Chemical Code



7664-39-3
HYDROFLUORIC ACID
 ALSO CALLED [2057-09-3] Hydrofluoric acid (primary CASRN is 7664-39-3), [326604-75-5] Hydrofluoric acid (primar...
[View all synonyms \(4\)](#)

[Share Profile](#)

[Hazards](#) [Properties](#) [Functional Uses](#) [Process Chemistry](#) [Resources](#)

All Hazards View ⌵ Show List Hazard Summary Show PubMed Results Request Assessment Add to Comparison

| GreenScreen Assessment | GS Score | Group I Human | | | | | Group II and IP Human | | | | | | | | | | Ecotox | | | Fate | | Physical | | Mut | Non-GSLT | | | |
|------------------------|----------|---------------|----|---|-----|----|-----------------------|----|----|---|------|-----|-----|-----|-----|----|--------|-----|------|------|----|----------|-----|-----|----------|---|-------|--|
| | | C | M | R | D | E | AT | ST | ST | N | N | SnS | SnR | IrS | IrE | AA | CA | ATB | P | B | Rx | F | PBT | | GW | O | Other | |
| BM-2 | | L | L | L | L | M | VH | VH | M | H | M | L | DG | VH | VH | M | M | - | L | L | M | L | - | - | - | - | R | |
| All Hazards | LT-P1 | - | - | - | M-L | - | VH | - | - | - | VH-M | - | - | VH | VH | M | - | H | VH-M | - | M | - | VH | - | - | - | R | |
| PubMed Results | | 62 | 42 | 3 | 7 | 12 | 36 | 52 | 52 | 2 | 2 | 0 | 4 | 23 | 17 | 7 | 0 | - | 3 | 1 | 0 | 2 | - | 0 | 1 | 0 | - | |

Hazard Lists Download Lists

| ENDPOINT | HAZARD LEVEL | LIST NAME | HAZARD DESCRIPTION | OTHER LISTS |
|--|--------------|-----------|------------------------|-------------|
| Developmental Toxicity incl. developmental neurotoxicity | M-L | MAK | Pregnancy Risk Group C | |

Identifying and Evaluating TUR Options

- Where do I start?
- How can I find alternatives specific to my process and application?
- What tools to use to screen alternative chemistries?



Cleaner Solutions

- Database of chemicals tested in the lab over the last 25 years
- Performance results
- Quick hazard screening “safety score”
- “Replace a solvent” option allows for you to select the substrate, contaminant, process/equipment, and chemical you want to replace.

CleanerSolutions Database

The screenshot shows the CleanerSolutions Database website. At the top, the title "CleanerSolutions Database" is displayed in a dark blue header, with the subtitle "Toxics Use Reduction Institute - Surface Solutions Laboratory" below it. On the left side, there is a vertical navigation menu with categories: "Laboratory Clients and Test" (including Find a Cleaner, Replace a Solvent, Safety Screening Search, Part Description Search, Browse Clients and Trials), "Vendor Supplied Information" (including Vendor Search, Browse Vendors and Products), "Forms" (including Vendor Forms, Client Forms), "CleanerSolutions Home" (including About CleanerSolutions, Database Demos, Help Topics, TURI Laboratory Home, Contact the Lab), and another "TURI" logo at the bottom. The main content area is titled "Simple Solutions for Surface Cleaning" and includes a link "More about CleanerSolutions". Below this, there is a section "TURI Laboratory Client and Test Results" with a text box "Ask your cleaning questions today!" and a paragraph explaining that results are linked to testing information. It lists five search options: "Find a Cleaner" (Identify alternatives that have cleaned your contaminant), "Replace a Solvent" (Find alternatives to your current solvent cleaner), "Safety Screening Search" (Find products based on safety and environmental criteria), "Browse Clients and Trials" (Look through past lab clients by industry), and "Part Description Search" (Investigate cleaning trials based on part shape, size, complexity). To the right is a "Vendor Supplied Information" section with a paragraph about vendor-supplied information and two search options: "Search Vendor Information" (Search for products based on vendor recommended uses) and "Browse Vendors and Products" (Find vendors by name). Below this is a "Green Cleaning Lab" section with a paragraph about the lab's expertise and a "Green Cleaning Lab home" link. It also features an "Explore:" section with three buttons: "DIY Cleaner Recipes", "Retail Product Testing", and "Professional Product Testing". A paragraph describes the lab's testing process. At the bottom, there is a "Forms" section with two options: "Client Test Request Form" (Forms to arrange testing for your company. Or complete an online version.) and "Vendor Forms" (Forms for submitting product information to the lab.).

- If its not there, call the lab and they can test it for you!
- <https://www.cleansolutions.org/>

Pollution Prevention Options Analysis System (P2OASys)

- Use P2OASys to evaluate your alternatives!
- By using P2OASys, unforeseen negative environmental, worker or public health impacts may be identified prior to adopting the proposed changes.
- <https://p2oasys.turi.org/>

Welcome to the P2OASys Tool!

Information about P2OASys can be found on the TURI webpage [here](#).

| New Assessment | | Load From Database | |
|--|---|---|---------------------------------------|
| Name | P2OASys Format | SDS Format | Remove |
| Sample Chemical | <input type="button" value="Enter Data"/> | <input type="button" value="Enter Data"/> | <input type="button" value="Remove"/> |
| Score Summary | | Compare Raw Data | |
| <input type="button" value="Upload A Chemical/Product to the P2OASys Database"/> | | | |
| <input type="button" value="Export Data to CSV"/> | | <input type="button" value="Import Data from CSV"/> | |
| <input type="button" value="Hazard Score Matrix"/> | | | |



Activity #2

- Searching online resources
- Using TURI tools to identify and evaluate safer alternatives

Questions? Final Thoughts?

- Cleaner Solutions Upgrade
- P2OASys Upgrade
 - Updated information options
 - User friendly?
 - Load from database
 - Chronic Hazard, etc...



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