

INTRODUCING EPA'S CHEMICAL EXPOSURE KNOWLEDGEBASE

Sakshi Handa, Katherine Phillips, Kristin Isaacs

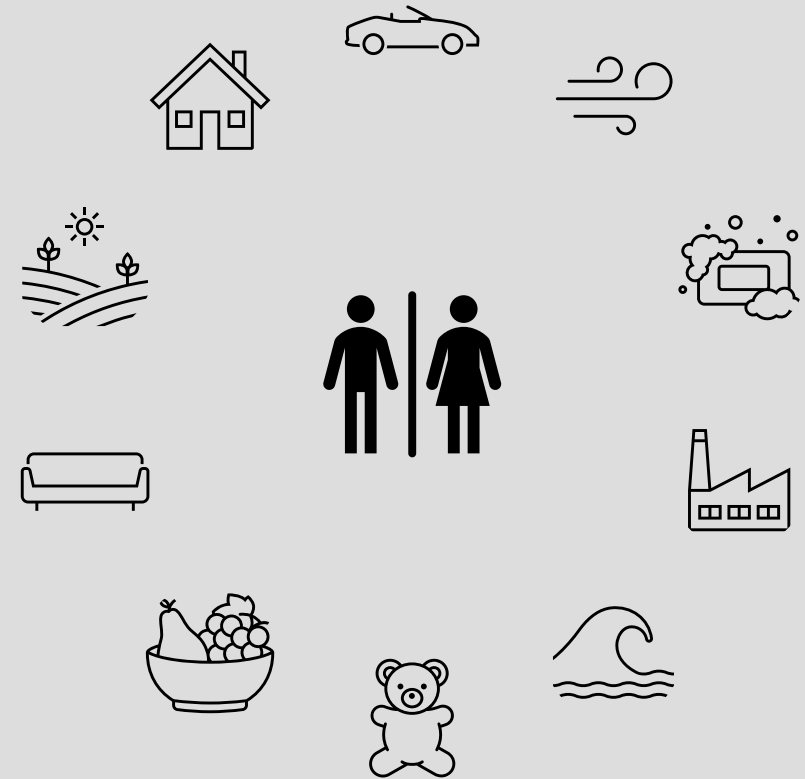
U.S. EPA, Office of Research and Development,
Center for Computational Toxicology and Exposure

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BACKGROUND

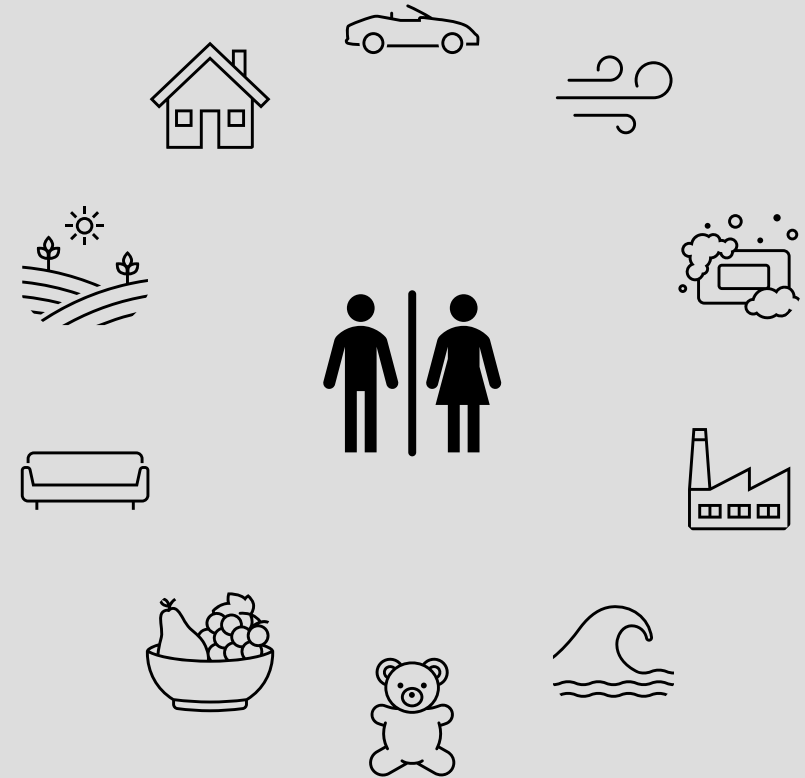
CHEMICAL EXPOSURE

- Humans interact with thousands of chemicals on a regular basis
- We often don't know precisely...
 - ...which chemicals we contact in our everyday lives
 - ...the quantities of those chemicals
 - ...the ultimate fate of those chemicals in our bodies
- Tools developed for Computational Exposure Science allow us to characterize our potential exposure to many chemicals along many exposure pathways



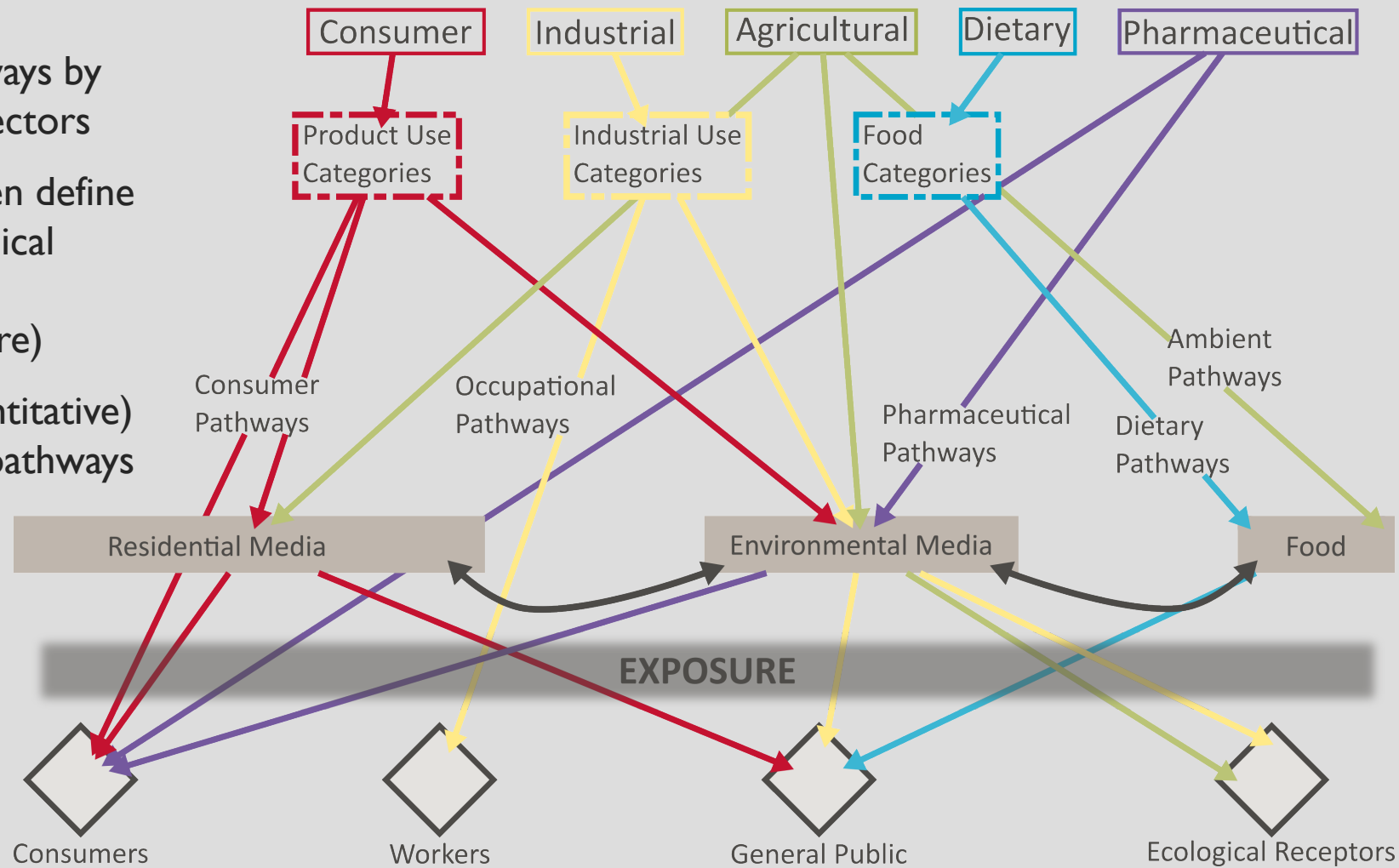
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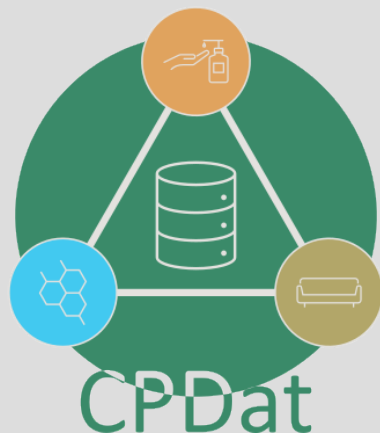


EXPOSURE PATHWAYS: SOURCE TO RECEPTORS

- We can trace a chemical's exposure pathways by examining its **use** in various commercial sectors
- Commercial sector of use allows us to then define potential pathways associated with a chemical (include potential chemical release, media occurrence, and ultimate receptor exposure)
- Use information (both qualitative and quantitative) are needed to inform models for various pathways



CHEMICAL AND PRODUCTS DATABASE



- ORD effort to organize and disseminate information about how **chemicals are used in commerce**, including consumer products, to inform exposure estimation
 - Incorporates previous ORD efforts that collected use information
 - Entire database is currently available for download (set of .xlsx files)
 - Summary information from database is available from ORD's **CompTox Chemicals Dashboard (CCD)**
- CCTE is collecting, curating, and storing large amounts of publicly available chemical use information to support the expansion of CPDat
 - **450k+** documents from internet sites, government or industry reports, manufacturer data sheets, and more
 - **3.4 million** chemical records
 - Qualitative and quantitative information
 - Efforts utilize custom internal document management, QA application, and data curation: **Factotum**

[nature](#) > [scientific data](#) > [data descriptors](#) > article

[Open Access](#) | [Published: 10 July 2018](#)

The Chemical and Products Database, a resource for exposure-relevant data on chemicals in consumer products

[Kathie L. Dionisio](#), [Katherine Phillips](#), [Paul S. Price](#), [Christopher M. Grulke](#), [Antony Williams](#), [Derya Biryol](#), [Tao Hong](#) & [Kristin K. Isaacs](#) 

[Scientific Data](#) **5**, Article number: 180125 (2018) | [Cite this article](#)

30k Accesses | **92** Citations | **21** Altmetric | [Metrics](#)

CPDAT IMPROVEMENTS

CPDat versions 1 – 3

Journal of Exposure Science and Environmental Epidemiology (2017) 00, 1–7
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www.nature.com/jes

ORIGINAL ARTICLE
Consumer product chemical weight fractions from ingredient lists
Kristin K. Isaacs^a, Katherine A. Phillips^a, Derya Biryol^{1,2}, Kathie L. Dionisio³ and Paul S. Price³

Development of a consumer product ingredient database for chemical exposure screening and prioritization

M.-R. Goldsmith^{a,*}, C.M. Grulke^a, R.D. Brooks^b, T.R. Transue^c, Y.M. Tan^a, A. Frame^{a,c}, P.P. Egeghy^a, R. Edwards^d, D.T. Chang^a, R. Tornero-Velez^a, K. Isaacs^a, A. Wang^{a,c}, J. Johnson^a, K. Holm^a, M. Reich^e, J. Mitchell^a, D.A. Vallerio^a, L. Phillips^a, M. Phillips^a, J.F. Wambaugh^a, R.S. Judson^a, T.J. Buckley^a, C.C. Dary^a

Ingredient weight fraction data from previous EPA data collection efforts

Contents lists available at ScienceDirect
Toxicology Reports
journal homepage: www.elsevier.com/locate/toxrep

Exploring consumer exposure pathways and patterns of use for chemicals in the environment

Kathie L. Dionisio^a, Alicia M. Frame^{b,1}, Michael-Rock Goldsmith^{a,2}, John F. Wambaugh^b, Alan Liddell^{a,3}, Tommy Cathey^a, Doris Smith^b, James Vail^a, Alexi S. Ernstoff^a, Peter Fantke^a, Olivier Jolliet^a

General use developed around consumer exposure

Green Chemistry

PAPER

View Article Online | View Journal | View Table of Contents

High-throughput screening of chemicals as functional substitutes using structure-based classification models†

Katherine A. Phillips^{a,b,c}, John F. Wambaugh^b, Christopher M. Grulke^b, Kathie L. Dionisio^c and Kristin K. Isaacs^c

Functional use terminology and models focused on consumer/personal care products

CPDat version 4

Review Article | Published: 26 November 2022

The chemical landscape of high-throughput new approach methodologies for exposure

Kristin K. Isaacs^a, Peter Egeghy^b, Kathie L. Dionisio^c, Katherine A. Phillips^d, Angelika Zidek^e, Caroline Bing^f, Jon R. Sobus^g, Elin M. Ulrich^h, Barbara A. Wetmoreⁱ, Antony J. Williams^j & John F. Wambaugh^k

Journal of Exposure Science & Environmental Epidemiology 32, 820–832 (2022) | [Cite this article](#)

Inclusion of industrial products and processes and consumer articles in addition to more consumer formulations

Article | Published: 11 November 2019

Establishing a system of consumer product use categories to support rapid modeling of human exposure

Kristin K. Isaacs^a, Kathie L. Dionisio^b, Katherine A. Phillips^c, Charles Bevington^d, Peter Egeghy^e & Paul S. Price^f

Journal of Exposure Science & Environmental Epidemiology 30, 171–183 (2020) | [Cite this article](#)

Article | Published: 11 November 2019

Environmental mixtures and breast cancer: identifying co-exposure patterns between understudied vs breast cancer-associated chemicals using chemical inventory informatics

Lauren E. Koval^a, Kathie L. Dionisio^b, Katie Paul Friedman^c, Kristin K. Isaacs^d & Julia E. Rager^e

Organisa
Organisa *Journal of Exposure Science & Environmental Epidemiology* 32, 794–807 (2022) | [Cite this article](#)

English - Or. English

ENVIRONMENT DIRECTORATE
JOINT MEETING OF THE CHEMICALS COMMITTEE AND
THE WORKING PARTY ON CHEMICALS, PESTICIDES AND BIOTECHNOLOGY

INTERNATIONALLY HARMONISED FUNCTIONAL, PRODUCT AND ARTICLE USE CATEGORIES

Standardized taxonomy of:

- Product Use Categories (PUCs)
- Function Categories (FCs)
- List Presence Keywords



CHEMICAL USE DEFINITIONS

- **Commercial Sector Use:**

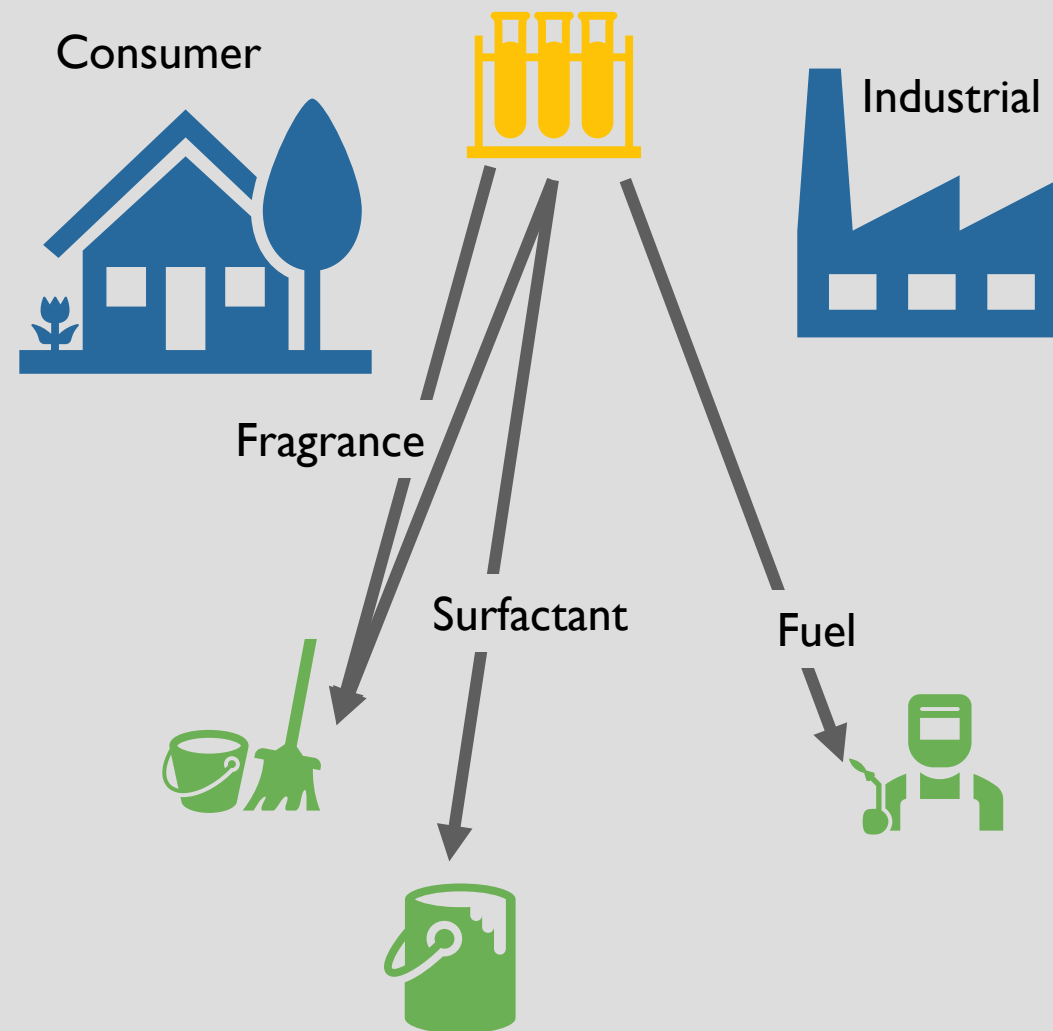
Which groups use a chemical (i.e., industrial process *versus* consumer product)

- **End-use:**

The specific commercial sector products or processes in which a chemical is used

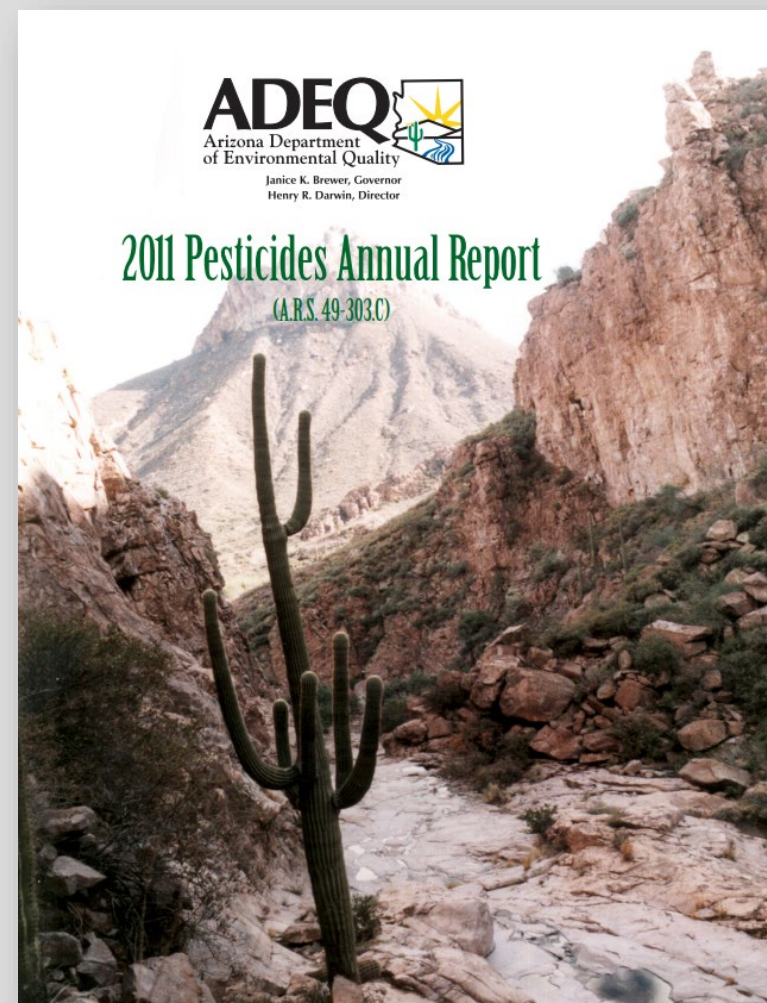
- **Functional Use:**

Roles a chemical can serve due to its structure and properties



CHEMICAL USE TYPES IN CPDAT

- **Commercial Sector Use**
 - Lists of chemicals used in different commercial or industrial sectors
 - Organized by **Chemical List Presence Keywords**



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 - Organized by **Chemical List Presence Keywords**
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 - Use in particular products or product types
 - Organized by **Product Use Categories (PUCs)**

Safety Data Sheet	
1. Identification	
2. Hazard(s) Identification	
3. Composition/Information on Ingredients	
4. First-aid Measures	
5. Firefighting Measures	
6. Accidental Release Measures	
7. Handling and Storage	
8. Exposure Controls/Personal Protection	
9. Physical and Chemical Properties	
10. Stability and Reactivity	
11. Toxicological Information	

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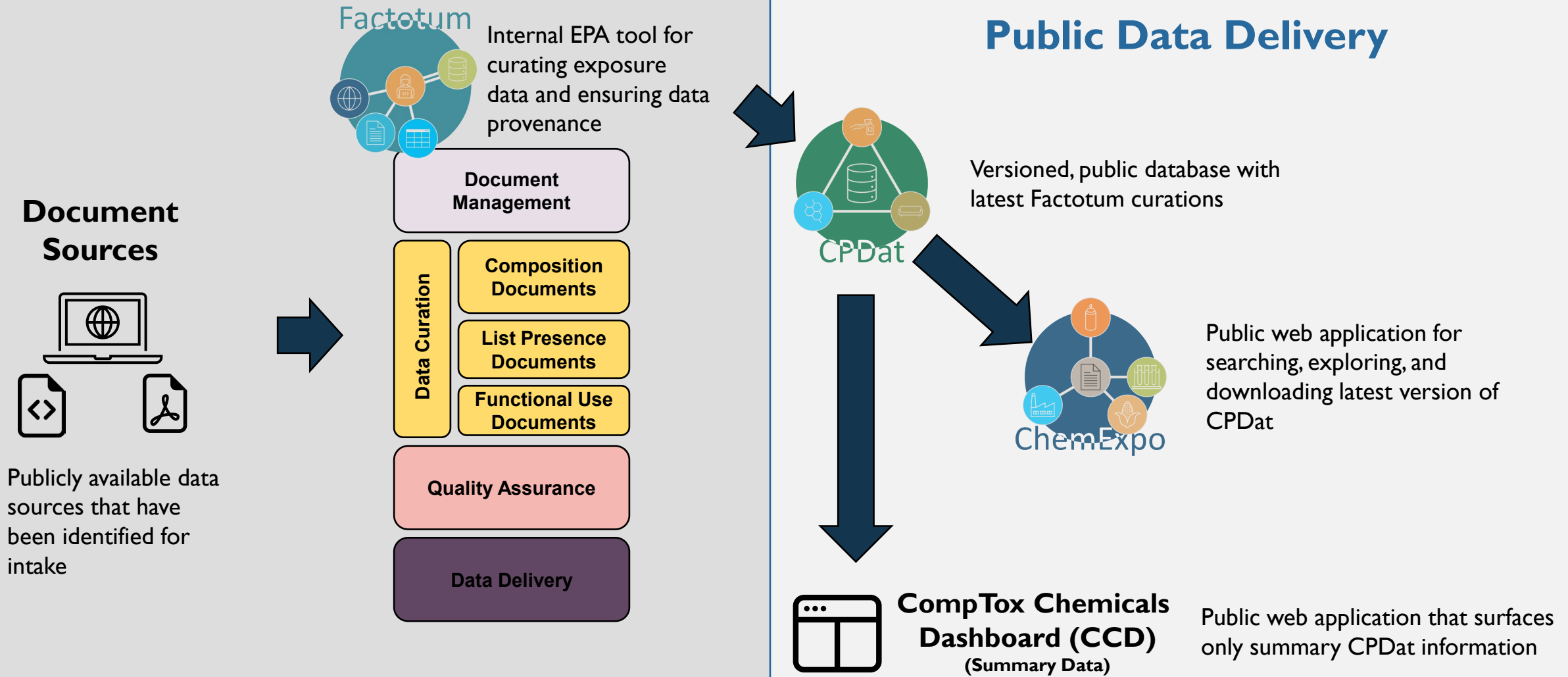
Safety Data Sheet	
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CHEMICAL USE TYPES IN CPDAT

- Commercial Sector Use
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- End-Use
 - Use in particular products or product types
 - Organized by **Product Use Categories (PUCs)**
- Functional use
 - Role the chemical plays in different consumer products or industrial processes
 - Organized by OECD's **Function Categories (FCs)**

Ingredients		
ingredient	function	CAS #
water	diluent + solvent	7732-18-5
sodium lauryl sulfate	surfactant (cleaning agent)	68585-47-7
lauramine oxide	surfactant (cleaning agent)	1643-20-5
decyl glucoside	surfactant (cleaning agent)	68515-73-1
lauryl glucoside	surfactant (cleaning agent)	110615-47-9
agrumex	fragrance	88-41-5
benzyl acetate	fragrance	140-11-4
cyclamen aldehyde	fragrance	103-95-7
dihydro myrcenol	fragrance	18479-58-8
dipropylene glycol	fragrance	25265-71-8
hedione	fragrance	24851-98-7
hexyl cinnamic aldehyde	fragrance [†]	101-86-0
iso e super	fragrance	54464-57-2
linalool	fragrance [†]	78-70-6
linalyl acetate	fragrance	115-95-7
phenyl ethyl alcohol	fragrance	60-12-8
ethanol	solvent	64-17-5
glycerin	moisturizer	56-81-5
sodium chloride	thickener	7647-14-5
citric acid	pH adjuster	77-92-9
methylchloroisothiazolinone	preservative	26172-55-4
methylisothiazolinone	preservative	2682-20-4
colorant	colorant	CBI

OVERVIEW OF CPDAT PIPELINE



CHEMEXPO KNOWLEDGEBASE

- Provides public access to CPDat
- Built on Factotum's search and visualization functionality
- Search capability by extracted text, product or product category name, chemical name, function
- Interactive data exploration via unique landing pages for
 - product category
 - chemical
 - function category
- Interactive data downloads



Welcome to ChemExpo Knowledgebase

ChemExpo is an interactive web application for exploring chemical data, curated from public documents, relevant to exposure assessment. ChemExpo currently surfaces data collected by EPA about how chemicals are used in commerce and how they occur in consumer and industrial products; these data are collectively known as the Chemicals and Products Database (CPDat). ChemExpo provides tools for exploring and downloading these data, which include consumer product composition, chemical functional use, and general chemical use information. The ChemExpo team actively works to curate these data to specific consumer and occupational product categories, to chemical functional uses, and to substance identifiers (DTXSIDs) used by EPA and the CompTox Chemicals Dashboard.

Explore Products

Products Linked to PUCs

Formulation PUCs

General Category - Product Family - Product Type

ChemExpo Get Data Explore Products Search ChemExpo Comment

Cleaning products and household care laundry and fabric treatment / fabric softener

Kind Formulation
Description products used to improve tactile properties of fabrics that are added to the rinse water of clothes washers (excluding dryer sheets)

Assumed Attributes
No assumed attributes are associated with this PUC.

Additional Statistics

Products	802
Cumulative Products	802
Documents	802
Curated Chemicals	227

Allowed Attributes
child liquid

Linkages to Other Taxonomies
No taxonomies are linked to this PUC.

Products Documents Chemicals

Functional Uses Associated with "Cleaning products and household care - laundry and fabric treatment"

Show 10 entries Search Download All Functions

Document	Chemical Name	CAS	Use	Reported Functional	Harm
all fabric softener liquid - free clear 32oz	Water	7732-18-5	process aid	Process specific	Process specific
all fabric softener liquid - free clear 32oz	Calcium chloride	10043-52-4	process aid	Process specific	Process specific
all fabric softener liquid - free clear 32oz	Dimethyldioctadecylammonium chloride	107-64-2	softening agent	Softene	Preserv
all fabric softener liquid - free clear 32oz	Glutaraldehyde	111-30-8	Preservative	Preserv	Preserv

Preservative

Description Chemical substance used to eliminate or minimize the build-up of microbial growth to protect against decay, decomposition discoloration or spoilage and maintain product performance over full shelf-life; e.g., wood preservatives; cosmetic preservatives; and drug preservative. Not: biocide or embalming agent. However, some organizations consider preservatives as a subset of biocides. Excludes substances intended to preserve food products. See Closely Related: Food preservative (EPA)

Additional Statistics

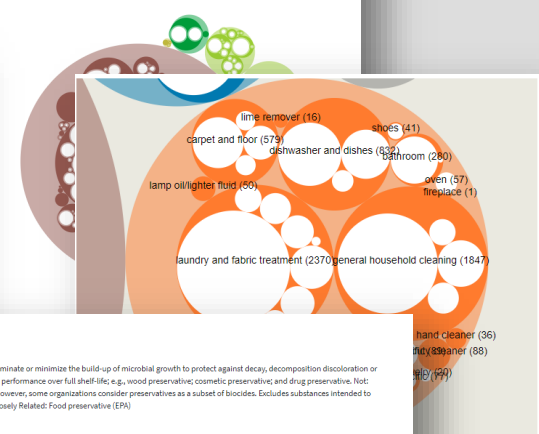
Products	2294
Documents	2551
Chemicals	276

Products Documents Chemicals

Chemicals Associated with "Preservative"

Show 10 entries Search Download Chemicals Associated with Function

DTXSID	Curated CAS	Curated Name
DTXSID001018757	27636-82-4	2,4-Imidazolidinedione, (hydroxymethyl)-5,5-dimethyl-
DTXSID001021502	4046-02-0	Ethyl ferulate
DTXSID0020319	1897-45-6	Chlorothalonil
DTXSID0020941	7632-00-0	Sodium nitrite



CHEMEXPO DEMO

CHEMEXPO HOMEPAGE




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This beta version of ChemExpo (v0.1) is currently undergoing review and feedback from stakeholders. Its data and functionality are subject to change.

Documents 

433,901

Products 

375,375

Products Linked To Product Use

Categories 

247,490

KEYWORD SEARCH

ChemExpo Get Data Explore Products ? i User Guide Contact

If you are looking for information on a specific chemical, the Chemicals tab returns the results of a search of harmonized chemical identifiers used by EPA (including DTXSIDs and preferred names) and their known synonyms, allowing you to access data for chemicals directly.

Documents 140 Products 117 Product Use Categories 0 **Chemicals 34510** Chemical List Keywords 162 Function Categories 130

Filter

None available

'Formaldehyde' found in the name of 34510 chemical identifiers (preferred names or synonyms) in 0.025 seconds.

[DTXSID80933988](#)

Curated chemical name: *Benzenesulfonamide, 4-methyl-, polymer with formaldehyde*
Curated CAS: 25035-71-6

[DTXSID7020637](#)

Curated chemical name: *Formaldehyde*
Curated CAS: 50-00-0

[DTXSID2049713](#)

Curated chemical name: Bakelite
Curated CAS: 9003-35-4

CHEMICAL DETAIL PAGE: FORMALDEHYDE

Formaldehyde

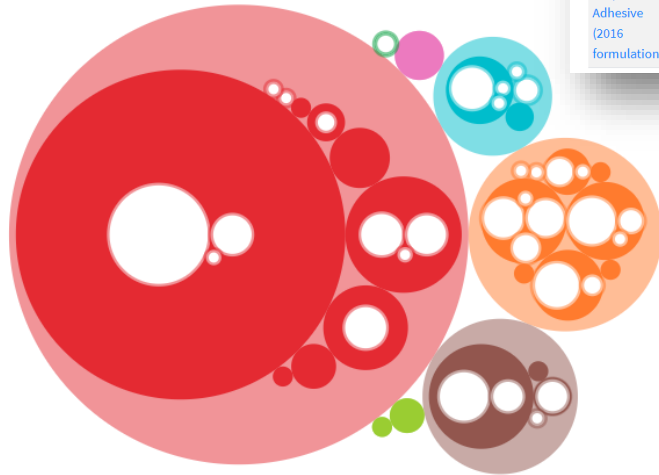
DTXSID7020637

50-00-0

Explore products containing this chemical. Use the filter buttons to filter the tables below to certain Product Use Categories. Click the info icon for each PUC to access its detailed chemical and product data.

Note: the high-level PUCs link to products that can't be further categorized; drill down to access products with refined PUC categorizations

Formulation PUCs		
General Category - Product Family - Product Type		
➤	Arts and crafts/office supplies ⓘ ⌵	1
➤	Cleaning products and household care ⓘ ⌵	72
➤	Electronics/small appliances ⓘ ⌵	2
➤	Food and drug ⓘ ⌵	3
➤	Home maintenance ⓘ ⌵	376
➤	Personal care ⓘ ⌵	38
➤	Pesticides ⓘ ⌵	6
➤	Vehicle ⓘ ⌵	29



Products

Products Containing "Formaldehyde"

Show 10 entries Search: [Download Products and Weight Fractions](#) [Show All Products](#)

Product	Manufacturer	Brand	Document	PUC	PUC Kind	Classification Method
Ardell Starter Kit, 105 Black (2014 formulation)	American International Industries	Ardell	Ardell Starter Kit, 105 Black (2014 formulation)	Personal care - makeup and related - eye makeup	Formulation	Bulk Assignment
Salon Perfect Strip Eyelash Adhesive (old formulation)			Salon Perfect Strip Eyelash Adhesive (old formulation)	Personal care - makeup and related - eye makeup	Formulation	Bulk Assignment
Duo Striplash Adhesive (2016 formulation)	Duo	Duo	Duo Striplash Adhesive (2016 formulation)	Personal care - makeup and related - eye makeup	Formulation	Bulk Assignment

Function

Functions Associated with "Formaldehyde"

Show 10 entries Search: [Download Functions](#) [Show All Functions](#)

Data Type	Document	Reported Function	Harmonized Function
Composition	wellmade performance flooring	binder	Binder
Composition	zep tri foam	Preservative	Preservative
Composition	zep tri foam	Preservative	Preservative
Composition	heavy duty glass cleaner concentrate	Preservative	Preservative
Composition	aap clear coat protectant yellow pina colada	Preservative	Preservative
Composition	clean ems disinfectant twls	Preservative	Preservative
Composition	zep blue foaming clear coat protectant	Preservative	Preservative
Composition	zep pink foaming clear coat protectant	Preservative	Preservative

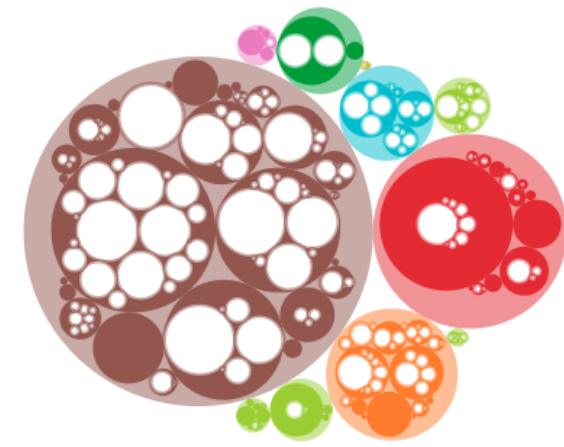
EXPLORE PRODUCTS

ChemExpo [Get Data](#) [Explore Products](#) [?](#) [i](#) [User Guide](#) [Contact](#)

Explore Products

Explore data for products linked to [Product Use Categories \(PUCs\)](#).
Click the info button (i) next to each PUC to access its detailed chemical and product data.
Note: the high-level PUCs link to products that can't be further categorized; drill down to access products with refined PUC categorizations.

Formulation PUCs		
<i>General Category - Product Family - Product Type</i>		
> Arts and crafts/office supplies	i	2583
> Sports equipment	i	68
> Cleaning products and household care	i	13160
> Electronics/small appliances	i	3788
> Home maintenance	i	29653
> Landscape/yard	i	927
> Personal care	i	101525
> Pesticides	i	1328
> Pet and animal care	i	218
> Vehicle	i	5656
> Food and drug	i	3087



Formulation PUCs		
<i>General Category - Product Family - Product Type</i>		
> Arts and crafts/office supplies	i	2583
> Sports equipment	i	68
> Cleaning products and household care	i	13160
air freshener i 2242		
> bathroom	i	742
> carpet and floor	i	576
carpet cleaner i 236		
carpet deodorizer i 30		
floor cleaner i 223		
floor polish i 62		
> dishwasher and dishes	i	914
drain products i 274		
> general household cleaning	i	2798



carpet deodorizer (30)

carpet cleaner (236)

floor cleaner (223)

floor polish (62)

PUC detail

PUC DETAIL PAGE: FLOOR CLEANER

[← Back to PUC list](#)

Cleaning products and household care carpet and floor / floor cleaner

Kind: Formulation

Description: hard floor cleaners, including pre-moistened wipes

Assumed Attributes: No assumed attributes are associated with this PUC

Allowed Attributes: liquid, powder, pump spr

Additional Statistics:

- Products: 223
- Cumulative Products: 223
- Documents: 222
- Curated Chemicals: 231

Products Documents **Chemicals** Functions

Chemicals Associated with "Cleaning products and household care - carpet and floor - floor cleaner"

Show 10 entries Search: [Download All Chemicals Associated with PUC](#)

DTXSID	Curated CAS	Curated Chemical Name	Count (Manual)	Count (Automatic)
DTXSID6026296	7732-18-5	Water	72	11
DTXSID2034259	2682-20-4	2-Methyl-3(2H)-isothiazolone	30	4
DTXSID8026727	106-24-1	(2E)-3,7-Dimethyl-2,6-octadien-1-ol	21	0
DTXSID50105933	110615-47-9	D-Glucopyranose, oligomeric, C10-16-alkyl glycosides	16	
DTXSID6024836	5392-40-5	3,7-Dimethyl-2,6-octadienal	15	
DTXSID5029633	1310-58-3	Potassium hydroxide	15	
DTXSID2029612	138-86-3	Limonene	15	
DTXSID70872594	68515-73-1	D-Glucopyranose, oligomeric, decyl octyl glycosides	14	
DTXSID3020332	77-92-9	Citric acid	13	
DTXSID3026726	106-22-9	Citronellol	13	

Showing 1 to 10 of 231 entries [Previous](#) [1](#)

Products Documents Chemicals **Functions**

Functions Associated with "Cleaning products and household care - carpet and floor - floor cleaner"

Show 10 entries Search: [Download All Functions Associated with PUC](#)

Classification Method	Document	Chemical Name	CAS	Reported Function	Harmonized Function
Composition	Pledge Revive It Multisurface Floor Finish	Proprietary Wetting Agent		wetting agent	Wetting agent (non-aqueous)
Composition	Pledge FloorCare Wood Concentrated Cleaner (Interrumpido)	Hydroxyethylcellulose	9004-62-0	Thickener	Thickening agent
Composition	Orange Glo Everyday Hardwood Floor Cleaner	c8-10 alkyl glucoside		surfactant-cleaning agent	Surfactant (surface active agent)
Composition	Orange Glo Everyday Hardwood Floor Cleaner	c6-12 alcohol ethoxylate		surfactant-cleaning agent	Surfactant (surface active agent)
Composition	Orange Glo Everyday Hardwood Floor Cleaner	Sodium octyl sulfate	142-31-4	surfactant-cleaning agent	Surfactant (surface active agent)
Composition	Pine-Sol Wet Floor Wipes Lemon Fresh	c10-12 alcohol ethoxylates		surfactant	Surfactant (surface active agent)
Composition	Pine-Sol Wet Floor Wipes Lemon Fresh	sodium c14-17 sec-alkyl sulfonate		surfactant	Surfactant (surface active agent)
Composition	Original Pine-Sol Wet Floor Wipes	sodium c14-17 sec-alkyl sulfonate		surfactant	Surfactant (surface active agent)
Composition	Original Pine-Sol Wet Floor Wipes	c10-12 alcohol ethoxylates		surfactant	Surfactant (surface active agent)
Composition	cif floor wipes	Coconut dimethyl amine oxide	61788-90-7	surfactant	Surfactant (surface active agent)

Showing 1 to 10 of 679 entries [Previous](#) [1](#) [2](#) [3](#) [4](#) [5](#) ... [68](#) [Next](#)

Products Documents Chemicals Functions

Products containing chemicals assigned to "Cleaning products and household care - carpet and floor - floor cleaner"

Show 10 entries Search: [Download Products and Chemical Weight Fractions](#)

Product	Brand Name	Manufacturer	Classification Method
Orange Glo 4-in-1 Hardwood Clean and Shine	Orange Glo	Church & Dwight	Manual
Orange Glo Everyday Hardwood Floor Cleaner	Orange Glo	Church & Dwight	Manual
Orange Glo Hardwood Floor Refinisher	Orange Glo	Church & Dwight	Manual

DOWNLOAD DATA

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Product Use Categories

Download PUC Attributes

Download List Presence Keywords

List Presence Keywords

Download Function Categories

Function Categories

Download Bulk Data

Bulk Download List Presence Data

Bulk Download Function Data

Bulk Download Composition Data

EXPLORE FUNCTION CATEGORIES

Function Categories

Functional Use Categories are harmonized identifiers describing the function a specific chemical serves (for example: fragrance, cleaning agent, filler, etc.). Functional uses reported by source documents are curated to harmonized function categories. In most cases, these are internationally recognized categories and definitions developed by the Organization for Economic Co-operation and Development (OECD). These standardized functional uses contain explicit definitions and exclusions, to reduce ambiguity in category assignment. New function categories will be added as needed to accommodate novel uses. These are indicated as internal to EPA through the use of (EPA) within the category name. Function Categories are harmonized identifiers describing the function a specific chemical serves (for example: fragrance, cleaning agent, filler, etc.). Chemical functions reported by source documents are curated to harmonized function categories. In most cases, these are internationally recognized categories and definitions developed by the Organization for Economic Co-operation and Development (OECD). These standardized functions contain explicit definitions and exclusions, to reduce ambiguity in category assignment. New function categories are added as needed to accommodate novel uses. These are indicated as internal to EPA through the use of (EPA) within the category name. Data on the functions of chemicals in consumer products were originally developed and released as ORD's Functional Use (FuSE) database and are now maintained within CPDat. These data form the basis for ORD's Quantitative Structure Use Relationship (QSUR) models (Phillips et al. (2016)). See User Guide Section 'Explore Chemical Functions' for more information.

[Reset Filters](#)

Function Category ↑	Description	Product ...	Doc...	View Detail
Abrasive	Chemical substance used to abrade, smooth, or polish an object. Used to smooth, scour, scrub, clean, wear down, or polish surfaces by rubbing against the surface and removing imperfections from a surface. May be used in processes such as sputter etching and physical dry etching. Also referred to as a grinding agent; usually in the form of fine powders of hard substances; e.g., sandstones; pumice; quartz; silicates; aluminium oxides; and glass. See closely related: etching agent.	106	567	
Absorbent	Chemical substance used to retain other substances by assimilation. Also referred to as an antiscavative. See closely related: adsorbent.	85	316	
Adhesion/cohesion promoter	Chemical substance, either inorganic or organic, natural or synthetic, used to join opposite surfaces to each other; to promote bonding between other substances; to promote adhesion of surfaces; or to fasten other materials together. Generally applied from a solvent solution and allowed to dry on the two facing surfaces. Also referred to as glue; paste; coupling agent; gum; adhesive cement; bonding agent; inner coating; and anchor coating.	302	1970	
Adsorbent	Chemical substance used to retain other substances by accumulation on their surface; Exhibits a large surface area which can attract dissolved or finely dispersed substances from another medium. See closely related: absorbent; dehydrating agent.	13	13	

[Reset Filters](#)

Function Category	Description	Product Count	Document Count	View Detail
Flame retardant	Chemical substance that alters the normal degradation or combustion processes of plastics, rubbers, textiles, papers and woods, etc. Used on the surface of or incorporated into combustible materials to reduce or eliminate their tendency to ignite when exposed to heat or a flame for a short period of time. Used to raise the ignition point; and/or to slow down or prevent combustion.	242	1210	

1 to 1 of 1

Page Size:

FUNCTION DETAIL PAGE: FLAME RETARDANT

[← Back to FC list](#)

Flame retardant

Description Chemical substance that alters the normal degradation or combustion processes of plastics, rubbers, textiles, papers and woods, etc. Used on the surface of or incorporated into combustible materials to reduce or eliminate their tendency to ignite when exposed to heat or a flame for a short period of time. Used to raise the ignition point; and/or to slow down or prevent combustion.

Additional Statistics

Products	242
Documents	1210
Chemicals	216

Products

Documents

Chemicals

Products containing chemicals assigned to "Flame retardant"

Show 10 entries

Search:

[Download Products Associated with Function](#)

Product Name	Data Document	Product Use Categories	Classification Method
voxflor greenpad	voxflor greenpad	Construction and building materials	Manual
voxflor greenpad	voxflor greenpad	Construction and building materials	Manual
EnviroScreen Optimum-Verosol	EnviroScreen_Optimum_Verosol_2017-03-10	Furniture and furnishings	Manual
OmniaScreen-Verosol	OmniaScreen-Verosol_2017-03-10	Furniture and furnishings	Manual
Panduit Category 6A Riser Shielded Cable PUF6X04-Panduit	Panduit_Category_6A_Riser_Shielded_Cable_PUF6X04-Panduit-2016-07-20	Construction and building materials	Manual
Preserved Wall Gardens MDF Backerboard-Garden On The Wall	Preserved_Wall_Gardens_MDF_Backerboard-Garden_On_The_Wall-2017-05-04	Other indirect contact consumer goods	Manual

Products

Documents

Chemicals

Chemicals Associated with "Flame retardant"

Show 10 entries

Search:

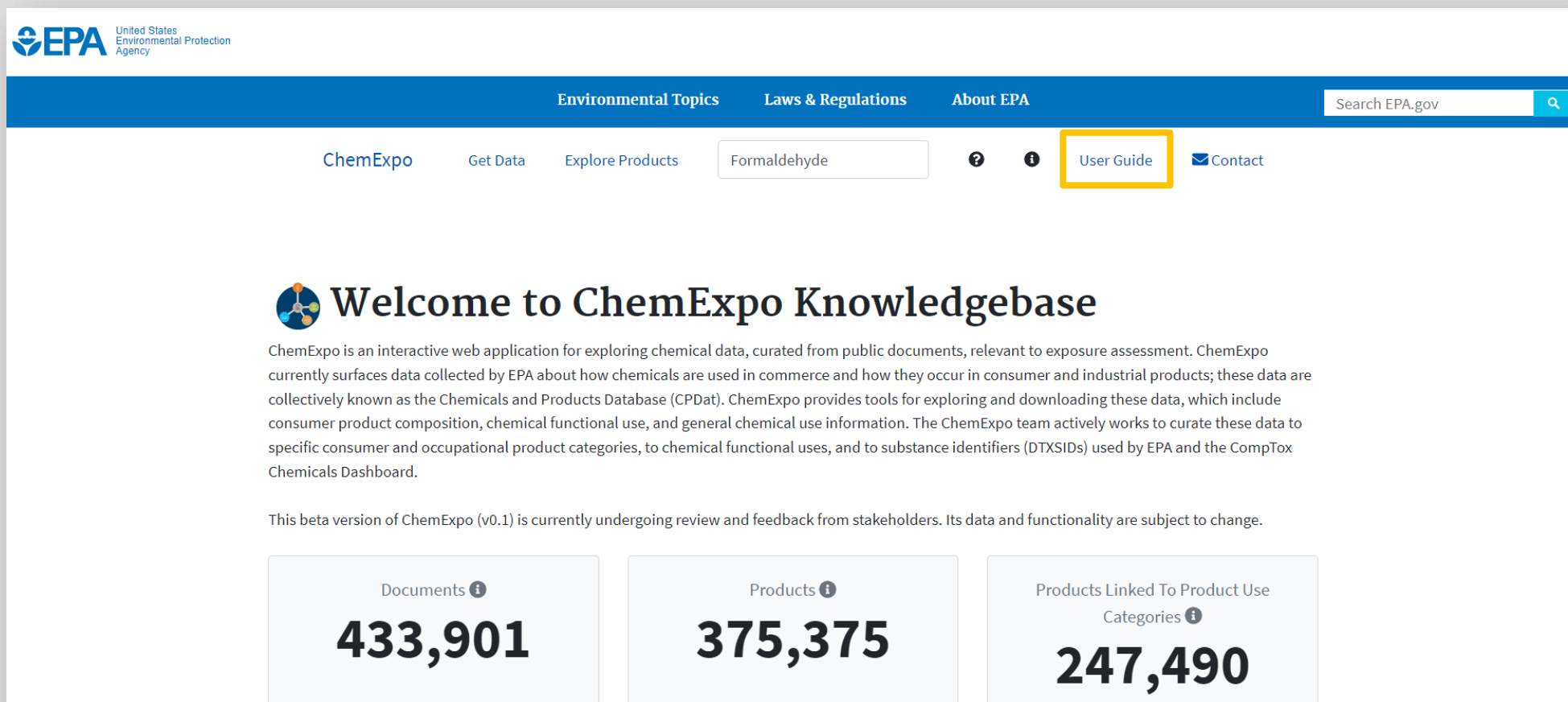
[Download Chemicals Associated with Function](#)

DTXSID	Curated CAS	Curated Name
DTXSID001014486	7789-82-4	Calcium molybdate(VI)
DTXSID001018214	12251-53-5	Aluminum sodium hydroxide (NaAl(OH)4)
DTXSID0020494	756-79-6	Dimethyl methylphosphonate
DTXSID0024553	123-77-3	Azodicarbonamide
DTXSID0050471	7727-43-7	Barium sulfate
DTXSID0052679	24623-77-6	Aluminium hydroxide oxide
DTXSID0052700	3072-84-2	2,2'-[(1-Methylethylidene)bis[(2,6-dibromo-4,1-phenylene)oxymethylene]]bis[oxirane]
DTXSID0052708	39635-79-5	4,4'-Sulphonylbis[2,6-dibromophenol]
DTXSID0058300	12767-90-7	Boron zinc oxide (B6Zn2O11)
DTXSID0058691	19186-97-1	Tris(tribromoneopentyl)phosphate

Showing 1 to 10 of 216 entries

Previous **1** 2 3 4 5 ... 22 Next

CHEMEXPO USER GUIDE



The screenshot shows the EPA website's navigation bar with the following elements:

- Search bar: Search EPA.gov
- Navigation tabs: Environmental Topics, Laws & Regulations, About EPA
- Secondary navigation: ChemExpo, Get Data, Explore Products, Formaldehyde (input field), ? (help), i (info), User Guide (highlighted with a yellow box), Contact (envelope icon)

Welcome to ChemExpo Knowledgebase

ChemExpo is an interactive web application for exploring chemical data, curated from public documents, relevant to exposure assessment. ChemExpo currently surfaces data collected by EPA about how chemicals are used in commerce and how they occur in consumer and industrial products; these data are collectively known as the Chemicals and Products Database (CPDat). ChemExpo provides tools for exploring and downloading these data, which include consumer product composition, chemical functional use, and general chemical use information. The ChemExpo team actively works to curate these data to specific consumer and occupational product categories, to chemical functional uses, and to substance identifiers (DTXIDs) used by EPA and the CompTox Chemicals Dashboard.

This beta version of ChemExpo (v0.1) is currently undergoing review and feedback from stakeholders. Its data and functionality are subject to change.

Documents <i>i</i>	Products <i>i</i>	Products Linked To Product Use Categories <i>i</i>
433,901	375,375	247,490

CHEMEXPO USER GUIDE

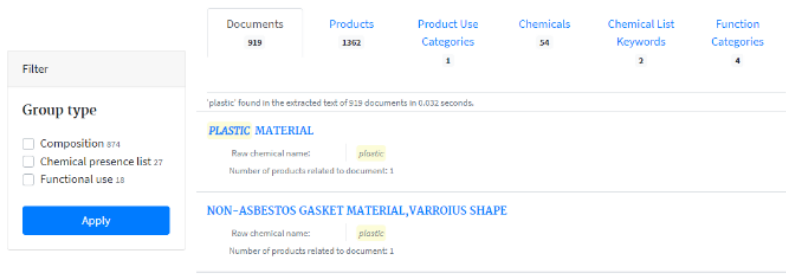
4 Search

Tip

Throughout ChemExpo, click on the Info **i** button for more information about a feature or tool.

How do I use the Search functionality in ChemExpo?

ChemExpo uses a single general search box that is located in the main navigation bar, accessible from any page in the application. Users can enter any search query by typing into the search box and pressing the **Enter** key. ChemExpo searches 6 different categories of information for the entered text: information related to documents, specific products, PUCs, FCs, chemicals, and chemical list keywords. The results ([Figure 4.1](#)) are returned on different tabs (one for each type of information). Users can navigate through each of the Search Tabs to view the results. Each tab searches on different data fields, as described in the [Table 4.1](#).



The screenshot shows search results for the query 'plastic'. At the top, there are six tabs: Documents (919), Products (1362), Product Use Categories (1), Chemicals (54), Chemical List Keywords (2), and Function Categories (4). Below the tabs, a filter panel is visible with 'Group type' options: Composition (874), Chemical presence list (27), and Functional use (18). The 'Apply' button is highlighted. The search results list two items:

- PLASTIC MATERIAL**
Raw chemical name: plastic
Number of products related to document: 1
- NON-ASBESTOS GASKET MATERIAL,VARROUIS SHAPE**
Raw chemical name: plastic
Number of products related to document: 1



13 Frequently Asked Questions (FAQs)

Table of contents

[13.1 Data and Maintenance Issues](#)

[13.2 Usability Questions](#)

13.1 Data and Maintenance Issues

Why can't ChemExpo provide the original Data Documents? >

Why can't the data document be found at the link provided? >

How often is ChemExpo updated? >

What kind of updates are we planning in the future? >

Where are the exposure predictions related to these chemicals? >

Can I suggest a new source for Curation in ChemExpo? >

Does ChemExpo contain information on exposure routes of specific products or product categories? >

CPDat also contains predicted information on chemical function from Quantitative Structure-Use Relationships (QSURs). Are these predictions available via ChemExpo? >

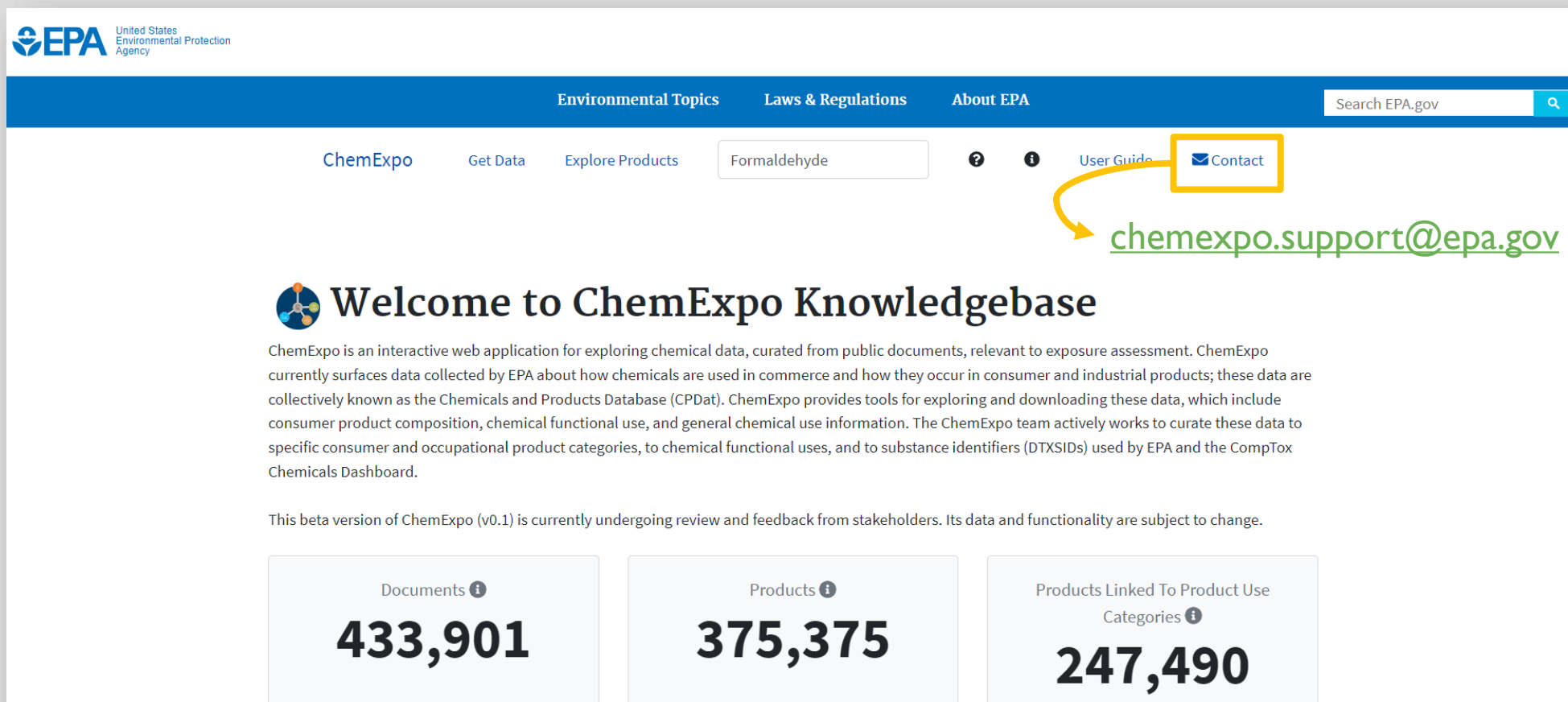
Why are there no chemicals cards for certain products? >

Why are there duplicate product entries in ChemExpo? >

13.2 Usability Questions

How can I search for Safety Data Sheets (SDSs) online from ChemExpo? >

CHEMEXPO HELP



The screenshot shows the EPA website header with navigation tabs for Environmental Topics, Laws & Regulations, and About EPA. A search bar is present on the right. Below the header, there are links for ChemExpo, Get Data, Explore Products, and a search input field containing 'Formaldehyde'. To the right of these links are icons for help (question mark) and information (i), followed by 'User Guide' and a 'Contact' button highlighted with a yellow box. A yellow arrow points from the 'Contact' button to the email address chemexpo.support@epa.gov. The main content area features a 'Welcome to ChemExpo Knowledgebase' section with a molecular icon, a paragraph describing the application, and a note about the beta version. At the bottom, three summary cards display statistics: Documents (433,901), Products (375,375), and Products Linked To Product Use Categories (247,490).

Environmental Topics Laws & Regulations About EPA Search EPA.gov

ChemExpo Get Data Explore Products Formaldehyde ? i User Guide **Contact**

chemexpo.support@epa.gov

Welcome to ChemExpo Knowledgebase

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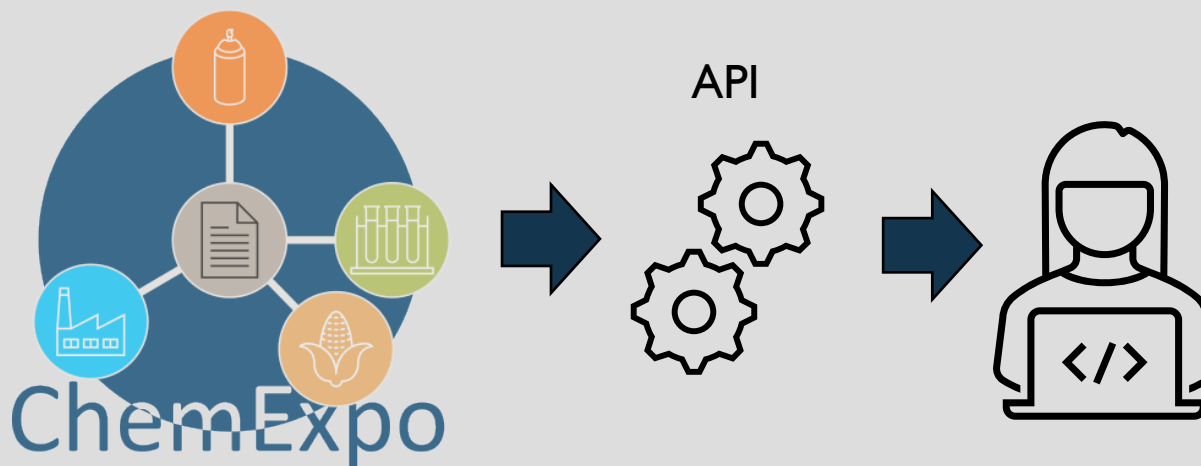
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Documents <i>i</i>	Products <i>i</i>	Products Linked To Product Use Categories <i>i</i>
433,901	375,375	247,490

WRAPPING UP

FUTURE WORK

- Formal peer-review of ChemExpo
- CPDat v4.0 and accompanying peer review manuscript
- Development and release of ChemExpo Application Programming Interfaces (APIs)



WORKING WITH US

Interested in working with the ChemExpo team to submit data to our knowledgebase?

Send us an email at chemexpo.support@epa.gov to discuss!





U.S. EPA

Peter Egeghy
Colleen Elonen
Kenta Baron-Furuyama
Taylor Wall

Michael Metcalf*
Christian Lutz*

GDIT

Lionel Girardin
Karen Hausman
Alison Larger

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Email

chemexpo.support@epa.gov
for questions and comments