Driving Innovation and Greener Chemical Choices: The CleanGredients Model

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Genesis of the Green Screen for Safer Chemicals and CleanGredients

US EPA Design for the Environment (DfE) Program – promoting Greener Chemicals

DfE Formulator Program

#1 Question: Is there a list of green chemicals we can use to formulate greener products?

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DfE FR Partnerships

Question: How do we determine which chemical is safer?

GREEN SCREEN FOR SAFER CHEMICALS

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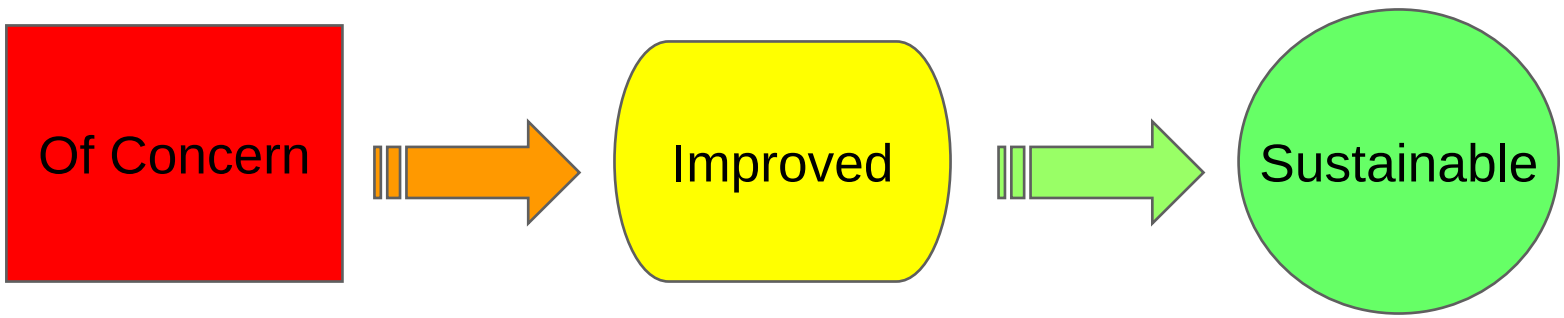
Elements of DfE Formulator Program: Based on Continuum of Improvement

Formula Ingredient by Use Class



Characteristics of Ingredient of Concern

Characteristics of Improved Ingredient

Characteristics of Sustainable Ingredient

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the online resource for green formulation

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Log in

search news about resources join the mailing list

Welcome to CleanGredients□

... an online database of institutional and industrial (I&I) cleaning product ingredient chemicals, providing verified information about the environmental and human health attributes of listed ingredients. CleanGredients□:

- helps formulators to identify better ingredients
- helps suppliers to showcase better ingredients

News and Announcements read all

CleanGredients□ Version 2 is now online! We have spent the last year and a half developing this new version, which offers additional user features and easily accommodates new ingredient modules. Your username and password will remain the same. We are eager to hear your feedback about CleanGredients□ Version 2, so please contact us with comments or questions at info@cleangredients.org.

Subscription Information

Subscription terms and benefits, including annual fees.

Overview of CleanGredients□

About CleanGredients□, including history and development.

Benefits

How CleanGredients□ can help you and your business.

How to List

How suppliers list ingredient chemicals.

How to Search

How formulators search for ingredient chemicals.

Additional Resources

A collection of resources related to green formulation.

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How It Works

Design for the Environment U.S. EPA

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Cleaning Product Formulators

Design for the Environment U.S. EPA

Raw Material Suppliers

= 3rd Party, e.g.

NSF

Authorized and overseen by:

Design for the Environment U.S. EPA

Search

Solvents - beta

Surfactants

You can search for ingredients using various search criteria. Select your first attribute in the top select box to the right. After you select an attribute from the drop-down menu, enter your search criteria in the input area immediately below it. Once you finish specifying your search criteria, click the Search button to retrieve the search results. If you are having problems finding search results, try specifying fewer criteria. To view the largest number of search results, do not enter any search criteria.

Supplier

- [ ] Air Products and Chemicals
- [ ] Akzo Nobel Surface Chemistry LLC
- [ ] BASF
- [ ] Burlington Chemical Company, Inc.
- [ ] CLER
- [ ] Cognis Corporation
- [ ] Croda
- [ ] DeForest Enterprises, Inc.
- [ ] Generic
- [ ] McIntyre Group, Ltd.
- [ ] Stepan Company
- [ ] Vitech International Ltd.

DfE Screen

- [x] Yes
- [ ] No
- [ ] Under Review
- [ ] DfE Screen under Development

Applications

- [x] Carpet
- [x] Hand Dish Soap
- [x] Hard Surface Cleaner
- [x] Laundry

Charge Class

- [x] Nonionic
- [ ] Anionic
- [ ] Cationic
- [ ] Amphoteric
- [ ] Blend

Physical Form

- [ ] Gel
- [ ] Granular
- [ ] Liquid
- [ ] Liquid/Paste
- [ ] Paste
- [ ] Powder
- [ ] Slurry
- [ ] Solid

Search Results for Surfactants (34)

Surfactant Name Supplier Name Supplier Product Number	CAS RN	Charge Class / Surfactant Class	HLB % Act.	Form Sp. Gr.	Flash Cloud	CMC pH	Biodegradation[1]	Acute Aquatic Toxicity (mg/L)	Passes DfE Screen
Inoterra™ DWE BASF Please use Product name for inquiries.		Nonionic / Alcohol ethoxylate	12.4 85	Liquid	>148 53	5~8	Meets 10-day window	≤1	Yes
Lutensol® XP 80 BASF	160875-66-1	Nonionic / Alcohol ethoxylate	13 100	Liquid	>140 56	7	Meets 10-day window	10~100	Yes
Burco APR-95 Burlington Chemical Company, Inc. 15874		Nonionic / Alcohol ethoxylate	13 95	Liquid 1.02	>93 58	5.5	Meets 10-day window	1~10	Yes
AG™ 6206 Akzo Nobel Surface Chemistry LLC		Nonionic / Alkyl polyglucoside	 75	Liquid 1.17	>100	7	Does not meet 10-day window	>100	Yes
Berol® 266 Akzo Nobel Surface Chemistry LLC		Nonionic / Alcohol ethoxylate	12.1 100	Liquid 0.98	>100 26	0.03 7	Meets 10-day window	1~10	Yes

Charge Class Nonionic

Surfactant Class Alcohol ethoxylate

Applications Hard Surface Cleaner, Hand Dish Soap, Carpet, Laundry

Handling and Storage

MSDS ⓘ

File Lutensol®_XP_80.pdf

Product Description BASF's Lutensol® XP surfactants are alkyl polyethylene glycol ethers based on C10-Guerbet alcohol and ethylene oxide.

Suggested Uses

Degreasers
Hard Surface cleaners
Industrial spraying applications

Supplier Product Number ⓘ

Technical Data

File Lutensol®_XP_TI.pdf

Technical Support/Sales Information

Technical Sales Title Technical Support

Acute Aquatic Toxicity

Reviewed Category

Reviewed category	10~100 mg/L

Algae

IC_{50}	10~100 mg/L
Species	Scenedesmus subspicatus
Duration	72 h
Test Method	DIN 38412 Part 9

Invertebrate

EC_{50}	10~100 mg/L
Species	Daphnia
Duration	48 h
Test Method	OECD 202

Fish

Supplier has no data for this attribute

Biodegradation

% degraded in 28 days	≥60% ThOD/ThCO2 (≥70% DOC)
10-day window	Meets 10-day window
Test Method	OECD 301B

Degradation Products of Concern

Degradation Products of Concern	None known
Comments	No known degradation products of concern.

DfE Screen

Passes DfE Screen	Yes

AKZO NOBEL
+ Company Information
+ General
+ Physical-Chemical
- Human Health
Acute Mammalian Toxicity
Irritancy
Risk Assessment
Sensitization
+ Environmental
+ Regulatory
+ Tier 1
+ Tier 2
+ Tier 3
Components

Human Health attributes for Berol® 266

Acute Mammalian Toxicity

Dermal	Supplier has no data for this attribute
Oral ⓘ	
LD_{50}	>2000 mg/kg-bw/d

Irritancy

Supplier has no data for this attribute

Sensitization ⓘ

Is the ingredient or are any of its components (at >0.1% concentration) known to be a sensitizer?	No
Sensitization Test Results	Not sensitizing based on testing with guinea pig.

Risk Assessment ⓘ

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Solvents - beta

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Supplier

DfE Screen

- ☐ Yes
- ☐ No
- ☐ Under Review
- ☐ DfE Screen under Development

Solvent Class

- ☐ Alcohol
- ☐ Ester
- ☐ Ethylene Glycol Ether
- ☐ Propylene Glycol Ether

Vapor Pressure

-- Enter a search value --

VOCs

-- Enter a search value --

Reset Clear Values Search

No Ingredients Match your Search Criteria

Elements of CleanGredients

- Developed via multi-stakeholder process
  - DfE ensures aspirational criteria
  - Industry expertise ensures pragmatism
- Helps formulators find greener chemicals
- Helps raw materials market greener chemicals
- Protects confidential business information
- Provides information relevant to sustainability
- Provides verification for Tier 1 attributes by a qualified 3rd party
- Tied to product development and environmentally preferable product recognition
  - Identifies ingredients that meet the DfE Screen
  - Product development tied to product recognition by DfE
  - Product recognition tied to epp specifications
- Lowers costs of product recognition and opens new markets
  - Low cost to subscribe
  - Low cost to list
  - No additional review costs for ingredients meeting the DfE Screen
- Model can be replicated in any sector (additives, electronic parts)
- Self sustaining (cost (ideally) and data population)

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Subscription

Benefits

Subscriber License Agreement

Subscribers

Suppliers (17)

Air Products and Chemicals

Akzo Nobel Surface Chemistry LLC

BASF

Belle-Aire Fragrances, Inc.

Burlington Chemical Company, Inc.

CLER

Cognis Corporation

Croda

DeForest Enterprises, Inc.

Hagelin & Company, Inc.

ISP (International Specialty Products)

J&E Sozio, Inc.

McIntyre Group, Ltd.

Pilot Chemical

Stepan Company

Surfactants, Inc.

Vitech International Ltd.

Formulators (264)

ABC Compounding Co., Inc.

Adco Cleaning Products

Advanced BioCatalytics Corporation

Aire-Master of America, Inc.

Akemi - Chemisch-Technische Spezialfabrik GmbH (Germany)

Alex C. Fergusson, Inc

Alpha Aromatics

Alpha Chemical Services Inc.

American Cleaning Solutions

Amrep

Anderson Chemical Company

Arkema Inc.

Armstrong Manufacturing Inc.

Aromafloria

Arrow Chemical Products, Inc.

Arrow Magnolia International, Inc.

ATCO International

Athea Laboratories

Auto-Chlor System

Automated Packaging Inc

Avmor Ltd.

B & B Blending, Inc

Behr Process

Berkley Medical

Best Sanitizers

Betco Corporation

Better Life

END

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California Green Chemistry Initiative Scientific Advisory Panel Report

- http://www.dtsc.ca.gov/PollutionPrevention/GreenChemistryInitiative/upload/SAP_Report.pdf
- See Appendix D, p. 107 of the report for the subcommittees report:
  - Advancing Green Chemistry and Engineering Through Alternatives Assessment

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Risk Assessment and Alternatives Assessment

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