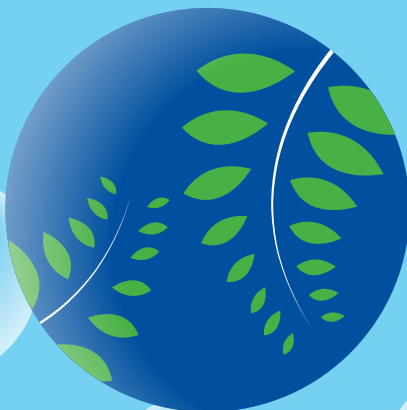


# Delivering the future of Clean



**BASF HOME CARE AND I&I**  
***Flex* Solutions for**  
**Low 1,4-Dioxane Formulations**



**■ BASF**

We create chemistry



**Flex**

Formulation flexibility for low  
1,4 - Dioxane requirements

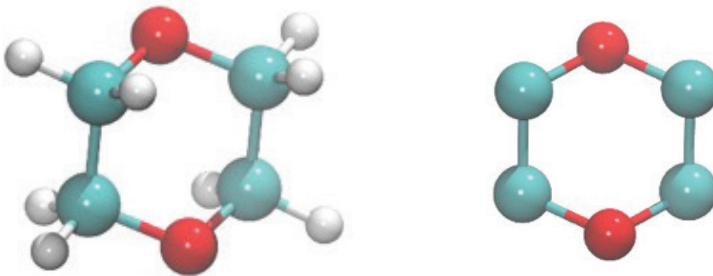
## What is ***Flex***? An Overview

Flex is BASF's market leading 1,4-Dioxane solution that helps you reduce and comply to 1,4-Dioxane limits for your cleaning portfolio. Flex is a 2-part portfolio comprised of Low level 1,4-Dioxane certified ingredients ( $\leq 5\text{ppm}$ ), and 1,4-Dioxane Free Ingredients ( $< 0.5\text{ ppm}$  based on manufacturing process).

# Background on 1,4-Dioxane and the Home Care and Industrial + Institutional Market

## BACKGROUND: WHAT IS 1,4-DIOXANE?

- 1,4-Dioxane is a synthetic chemical primarily used as a solvent and historically as a stabilizer for chlorinated solvents used in commercial and industrial applications.
- 1,4-Dioxane also forms as a byproduct during the manufacturing process of certain surfactants and other ingredients made with ethylene oxide.
- Because 1,4-dioxane is found in many ingredients, it is present in low concentrations in many household products such as deodorants, shampoos, toothpastes, and cleaning products.



## WHAT IS THE CONCERN ABOUT 1,4-DIOXANE?

- EPA has classified 1,4-Dioxane as “likely to be carcinogenic to humans” by all routes of exposure (per EPA IRIS 2013).
- 1,4-Dioxane is listed on California Proposition 65 as causing cancer.
- A 2016 report by the Department of Health and Human Services National Toxicology Program (NTP) found that 1,4-dioxane is “reasonably anticipated to be a human carcinogen based on sufficient evidence of carcinogenicity from studies in experimental animals”.
- The data available from human epidemiological studies cannot directly link human cancer and exposure to 1,4-dioxane.

[https://www.epa.gov/sites/production/files/2014-03/documents/ffrro\\_factsheet\\_contaminant\\_14-dioxane\\_january2014\\_final.pdf](https://www.epa.gov/sites/production/files/2014-03/documents/ffrro_factsheet_contaminant_14-dioxane_january2014_final.pdf)

<https://www.fda.gov/cosmetics/potential-contaminants-cosmetics/14-dioxane-cosmetics-manufacturing-byproduct>

# NY STATE GOVERNOR SIGNED LEGISLATURE BILL TARGETING HOME CARE, I&I, + PERSONAL CARE PRODUCTS

- June 2019: New York State Senate and Assembly passed a bill to limit presence of 1,4-Dioxane in Household Cleaning products, Cosmetic products and Personal Care products.
- NY State Governor Cuomo signed the Bill on December 9, 2019.

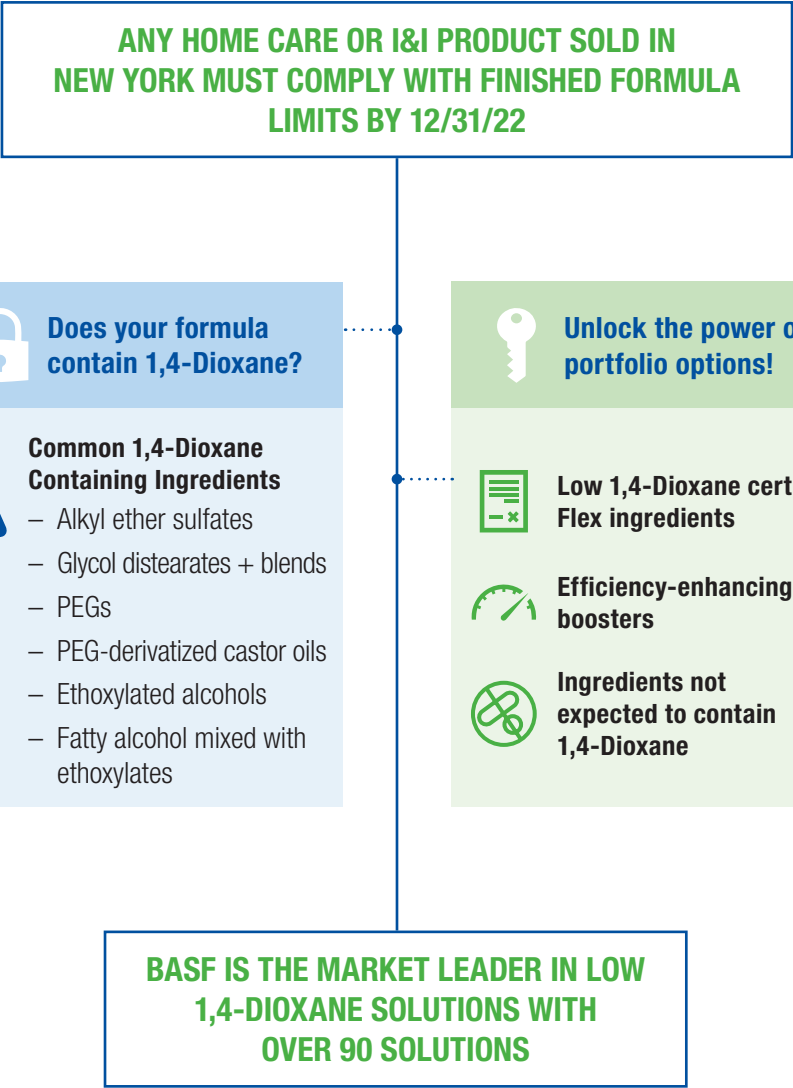
NY Bill 1,4-Dioxane Limit Restrictions Summarized	
Household Cleaning Products (includes I&I)	<ul style="list-style-type: none"><li>– 2 ppm by Dec. 31, 2022</li><li>– 1 ppm by Dec. 31, 2023</li><li>– 2025: Department of Environmental Conservation in consultation with the Department of Health can determine, by rule, if the “trace concentration threshold shall be lowered to better protect human health and the environment”</li></ul>

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## ADDITIONAL CALIFORNIAL LEGAL COMPLEXITIES FACE HOME, I&I, AND PERSONAL CARE PRODUCTS

Safer Consumer Products Evaluation	<ul style="list-style-type: none"><li>– State Department of Toxic Substances Control (DTSC) is assessing 1,4-Dioxane in HC and PC product(s) through Safer Consumer Products program</li><li>– Public comment period closed August 30, 2019</li><li>– Estimated to be completed in ~3 years</li></ul>
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# How do I know if **Flex** is Right for Me?





















# The Flex Portfolio



## LOW 1,4-DIOXANE CERTIFIED INGREDIENTS


New alternatives to existing products offer guaranteed low 1,4-Dioxane levels, certified at batch level on every COA

Product Group	Product	Safer Choice	1,4-D Lvl .
Polyalkylene Glycols	Pluriol® E 400 LS FLEX		≤1ppm
Polyalkylene Glycols	Pluriol® E 400 NF		<1ppm
Polyalkylene Glycols	Pluriol® E 600 LS FLEX		≤1ppm
Polyalkylene Glycols	Pluriol® E 600 NF		<1ppm
Polyalkylene Glycols	Pluriol® E 8000 E FLEX		≤1ppm
Nonionic Surfactants	Lutensol® AO 3		≤2ppm
Nonionic Surfactants	Lutensol® XL 100		≤2ppm
Nonionic Surfactants	Lutensol® XP 90		≤2ppm
Nonionic Surfactants	Lutensol® XL 90 FLEX		≤2ppm
Nonionic Surfactants	Lutensol® XL 80		≤2ppm
Nonionic Surfactants	Lutensol® XL 40		≤2ppm
Nonionic Surfactants	Lutensol® XP 80		≤2ppm
Nonionic Surfactants	Lutensol® XP 50		≤2ppm
Nonionic Surfactants	Lutensol® A 65 N		<2ppm
Nonionic Surfactants	Lutensol® LA 60		≤2ppm
Nonionic Surfactants	Lutensol® TDA 3 FLEX		≤3ppm
Nonionic Surfactants	Lutensol® TDA 6		≤3ppm
Nonionic Surfactants	Lutensol® TDA 8		≤2ppm
Nonionic Surfactants	Lutensol® TDA 8, 90%		≤2ppm
Nonionic Surfactants	Lutensol® TDA 9 FLEX		≤2ppm
Nonionic Surfactants	Lutensol® TDA 10		≤2ppm
Nonionic Surfactants	Inoterra™ DWE		≤2ppm
Nonionic Surfactants	Inoterra™ DWF		≤2ppm
Nonionic Surfactants	Plurafac® D 250		≤2ppm











Product Group	Product	Safer Choice	1,4-D Lvl .
Nonionic Surfactants	Plurafac® RA 300		≤2ppm
Nonionic Surfactants	Plurafac® RCS 43		≤2ppm
Nonionic Surfactants	Plurafac® S 305 LF		<1ppm
Nonionic Surfactants	Plurafac® S 405 LF		≤1ppm
Nonionic Surfactants	Plurafac® S 505 LF		≤2ppm
Nonionic Surfactants	Plurafac® SL 62		≤2ppm
Nonionic Surfactants	Plurafac® SLF 180		<1ppm
Nonionic Surfactants	Pluronic® 10R5		≤2ppm
Nonionic Surfactants	Pluronic® 17R4		<1ppm
Nonionic Surfactants	Pluronic® 25R2		<1ppm
Nonionic Surfactants	Pluronic® F 68 Prill		<1ppm
Nonionic Surfactants	Pluronic® F 108 Prill		≤2ppm
Nonionic Surfactants	Pluronic® L 10		≤1ppm
Nonionic Surfactants	Pluronic® L 44 INH		<1ppm
Nonionic Surfactants	Pluronic® L 61		<1ppm
Nonionic Surfactants	Pluronic® L 62		<1ppm
Nonionic Surfactants	Pluronic® L 62 LF		<1ppm
Nonionic Surfactants	Pluronic® N 3		<1ppm
Nonionic Surfactants	Pluronic® P 65		<1ppm
Nonionic Surfactants	Pluronic® P 105		≤2ppm
Nonionic Surfactants	Dehypon® LS 54 FLEX		≤1ppm
Special Surfactants	Dehypound® Advanced		≤1ppm



## **PORTFOLIO OF INGREDIENTS 1,4-DIOXANE FREE (NOT EXPECTED TO CONTAIN 1,4-DIOXANE)**

Product Group	Product	Safer Choice
Chelating agents	Trilon® B liquid	
Chelating agents	Trilon® B Powder	
Chelating agents	Trilon® BD	
Chelating agents	Trilon® BS Powder	
Chelating agents	Trilon® BX Liquid	
Chelating agents	Trilon® BX Powder	
Chelating agents	Trilon® C Liquid 50%	
Chelating agents	Trilon® C liquid	
Chelating agents	Trilon® M Granules SGT	
Chelating agents	Trilon® M Liquid T	
Chelating agents	Trilon® P liquid	
Enzymes	Lavergy® Pro 106 L	
Enzymes	Lavergy® Pro 106 LS	
Enzymes	Lavergy® C Bright 100L	
Enzymes	Lavergy® 114LS	
Other surfactants	Dehyton® AB 30	
Other surfactants	Dehyton® KE UP	
Other surfactants	Dehyton® PK 45	
Other surfactants	Dehyton® SFA	
Other surfactants	Deriphat® 160 C	
Special polymers	Polyquart® Ecoclean	
Special polymers	Polyquart® PN 60	
Special polymers	Polyquart® PRO A (US)	
Water Soluble Polymers	Sokalan® CP 5	
Water Soluble Polymers	Sokalan® CP 5 Granules	
Water Soluble Polymers	Sokalan® CP 7	



Product Group	Product	Safer Choice
Water Soluble Polymers	Sokalan® CP 7 Granules NL	
Water Soluble Polymers	Sokalan® CP 9	
Water Soluble Polymers	Sokalan® CP 10	
Water Soluble Polymers	Sokalan® CP 10 S	
Water Soluble Polymers	Sokalan® CP 12 S	
Water Soluble Polymers	Sokalan® CP 42 Gran	
Water Soluble Polymers	Sokalan® CP 50	
Water Soluble Polymers	Sokalan® PA 15	
Water Soluble Polymers	Sokalan® PA 25 CL Granules	
Water Soluble Polymers	Sokalan® PA 25 CL PN	
Water Soluble Polymers	Sokalan® PA 30 CL	
Water Soluble Polymers	Sokalan® PA 30 CL PN Granules	
Nonionic Surfactants	APG® 325	
Nonionic Surfactants	Glucopon® 50 G	
Nonionic Surfactants	Glucopon® 215 UP	
Nonionic Surfactants	Glucopon® 225 DK	
Nonionic Surfactants	Glucopon® 420 UP	
Nonionic Surfactants	Glucopon® 425 N	
Nonionic Surfactants	Glucopon® 600 UP	
Nonionic Surfactants	Glucopon® 625 UP	



## What's Next?

**Reach out to your account manager for more details**

**Email [detergents-cleaners-na@basf.com](mailto:detergents-cleaners-na@basf.com)**

**Go to <https://www.hcii.basf.us/low-1-4-dioxane> for more content**



We create chemistry

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## Safety

We know of no ill effects that could have resulted from using our products for the purpose for which they are intended and from processing them in accordance with current practice. According to the experience we have gained up to now and other information at our disposal, our products do not exert any harmful effects on health, provided that they are used properly, due attention is given to the precautions necessary for handling chemicals, and the information and advice given in our safety data sheet are observed.

## Labeling

Details about the classification and labeling of our products and further advice on safe handling are contained in the current safety data sheets.

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TM = Trademark of BASF

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