



Agenda

- What is 1,4-Dioxane?
- Introduction to NY-law on 1,4-Dioxane
- What are Flex Ingredients?
- 1,4 Dioxane Online Calculator



Speaker



Prerna Chatterjee

Sustainability Manager, BASF Care Creations, North America



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.
- It can also be found as an impurity in household products such as deodorants, shampoos, toothpastes, and cleaning products.
- 1,4-Dioxane forms as a byproduct during the manufacturing process of certain surfactants and emulsifiers produced with ethylene oxide
- 1,4-Dioxane is completely miscible in water



Poll Question

How aware are you about the NY law on 1,4-Dioxane?

- 1) Yes, I know about it in detail
- 2) No, I have no idea
- 3) I know it exists but don't know the details



New NY State law targets Home + 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.
- Status: Signed in to law in New York
 December 9, 2019; Law goes in to effect
 January 1, 2022

NY Bill 1,4-Dioxane Limit Restrictions Summarized					
Household Cleaning Products + Personal Care Products	 2 ppm by Dec. 31, 2022 1 ppm by Dec. 31, 2023 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" 				
Cosmetic Products	 10 ppm by Dec. 31, 2022 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" 				



What is Flex?

Flex is BASF's portfolio of ingredients designed to offer formulation flexibility and help you comply with 1,4-Dioxane limits for finished personal care products ahead of the State of New York December 31, 2022 deadline.

Our *Flex* portfolio supports a seamless transition to meet new regulations in three ways:

- 1) Replace ingredients with Flex Low 1,4-Dioxane certified ingredients
- **2)Rebalance** formulations with ingredients containing not more than 10 ppm 1,4-Dioxane
- 3)Reformulate products using alternative ingredients not expected to contain 1,4-Dioxane



Consider *Flex* ingredients if your products contain:

- Polyethylene glycols (PEGs)
- PEG-derivatized castor oils
- Ethoxylated alcohols
- Fatty alcohol mixed with ethoxylates
- Alkyl ether sulfates
- Glycol distearates
- Glycol distearate blends

BASF is a market leader in low 1,4 Dioxane solutions



BASF offers *Flex*ibility to Formulators with a new line of products

- ✓ We systematically evaluated our portfolio to give you the Flexibility and confidence needed to create low 1,4-Dioxane formulas.
- ✓ We are investing in our assets to produce material that meets aggressive 1,4-Dioxane limits.
- ✓ Our formulation experts can support you with alternatives to 1,4-Dioxane-containing products.

Application	New FLEX Product Range	Product	Current 1,4-	New 1,4-Dioxane
		Туре	Dioxane spec (ppm)	Spec (ppm)
	Pluracare® F 127 NF PR FLEX	Solubilizer	not more than 5	not more than 1
	Pluracare® E 400 NF PEG FLEX	PEG	not more than 10	not more than 1
	Pluracare® E 600 NF PEG FLEX	PEG	not more than 10	not more than 1
Personal	Texapon® N70 NA FLEXGold	Surfactant	N/A	not more than 5
	Texapon® N70 NA FLEXSilver	Surfactant	N/A	not more than 10
Care	Eumulgin® O 10 Flex		N/A	not more than 1
	Eumulgin® B 25 Flex (NA)	Emulsifier	not more than 10	not more than 1
	Eumulgin® B 2 Flex		N/A	not more than 1
	Cetiol® HE Flex	Emollient	N/A	not more than 1
	Emulgade® 1000 NI Flex	Cream Base	N/A	not more than 1

A full product line for oral, rinse-off, and leave-on formulas

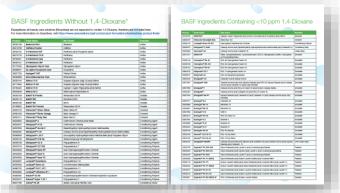


1,4 Dioxane Communication











News Release

BASF launches 1,4-Dioxane Online Calculator for personal care formulators in North America

FLORHAM PARK, NJ, May 14, 2020 – BASF Care Creations[™] has launched its new 1.4-<u>Dioxane Online Calculator</u>, which will allow personal care formulators to determine the 1,4-Dioxane content in their formulas. The tool, which is accessible from both desktop and mobile devices, also recommends alternative BASF ingredients to bring the total 1,4-Dioxane value of the formulation to less than 1ppm.

"This tool will assist our partners in complying with regulations ahead of the 2022 and 2023 deadlines," said Daniele Piergentili, Vice President, BASF Home & Personal Care, North America. "It is a testament to our commitment to support the growth of our customers by providing digital tools that ultimately make their lives easier."

<u>S4389B</u>, a New York state law signed in December 2019, prohibits the sale of personal care products and household cleaning products containing more than 2ppm 1,4-Dioxane, as well as cosmetics products containing 10ppm 1,4-Dioxane, by the end of 2022; for personal care and household cleaning products the limit will be further reduced to 1ppm at the end of 2023. The state of California is also assessing 1,4-Dioxane in home and personal care products through the <u>Safer Consumer Products</u> program and research is estimated to be completed in three years.

To allow for full formulation flexibility, in addition to the BASF product offering and recommendations, the 1,4-Dioxane Online Calculator allows inclusion of non-BASF ingredients if the 1,4-Dioxane level in them is entered. Formulators are also able to place sample requests for BASF ingredients directly from the calculator.

Explore the 1,4-Dioxane Online Calculator HERE.

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Download Brochure here





Take the next step toward *Flex*ibility



1,4-Dioxane regulation is here and must be continuously monitored for any changes



Formulators will need to navigate the changing landscape and reassess their ingredient choices

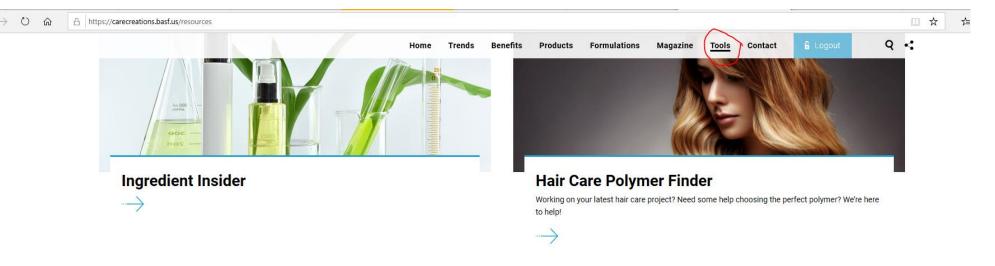


Harness the expertise of BASF to navigate regulation and reformulate for continued success



Introducing the1,4-Dioxane Calculator

Where is it located? https://carecreations.basf.us/resources











Requires Login





1,4-Dioxane Calculator Benefits

- Save time in reformulating products for new 1,4-Dioxane limits
- Receive suggestions for replacement products quickly and easily within the calculator
- See which products are contributing the most 1,4-Dioxane to the formulation and where use levels should be adjusted
- Flexibility to calculate the 1,4-Dioxane level of the formula with ingredients from any supplier, provided the 1,4-Dioxane ppm level is known
- Provides a range (Example : 3ppm 5ppm)
- Keep track of your work with the "Email my Formula" feature



Poll Question

What is your role?

- 1) Personal Care product development
- 2) Business Leader
- 3) Purchasing agent
- 4) Other



Formulation Walk Through





Welcome to the Care Creations™ 1,4-Dioxane Calculator



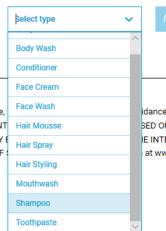
Pick and choose BASF ingredients or enter your own – and instantly see if the formulation you are creating is less than 1ppm. The calculator also provides recommendations to suit your needs! You can submit sample requests once completed and save your formulation.

Dig in and happy formulating!

Disclaimer

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Please choose your formulation type below and click next to get started



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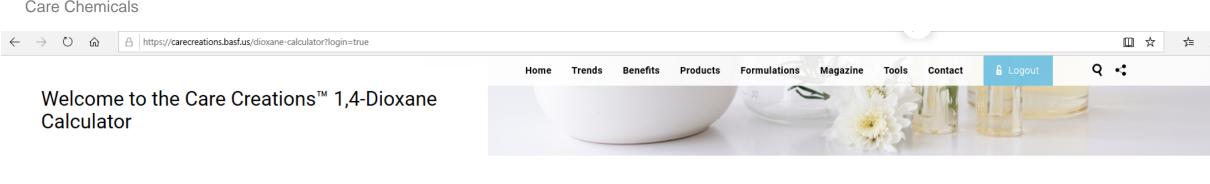
Magazine Rigorous hand washing: Wha

away?
Itchy, oily or flaky scalp? Try a
Hand Hygiene Formulation S
COVID-19

Lead the charge to reformulate for 1,4-Dioxane limits







←Start Over

Now formulating

Shampoo

Chemical Name Usage Quantity 1,4-Dioxane Level

To get started, click on a button below to add a BASF or non-BASF chemical.

+ Add BASF Chemical

+ Add Custom Chemical

+ Add DI Water



Please note: Formulation can only be tested once ingredients' usage equals exactly 100%

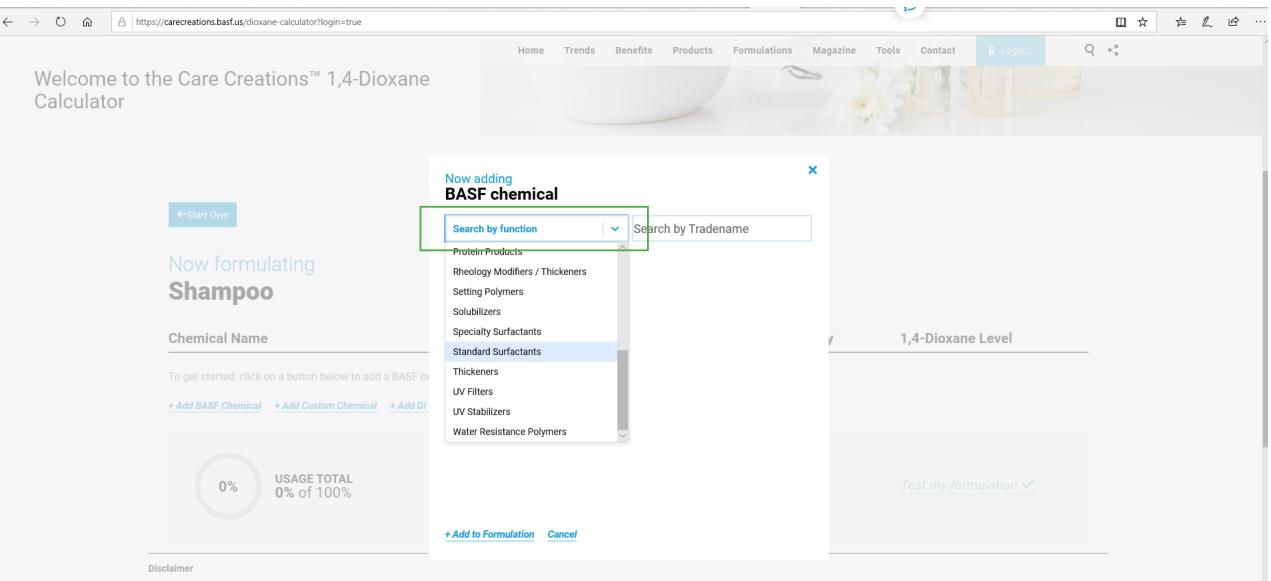
Test my formulation ✓

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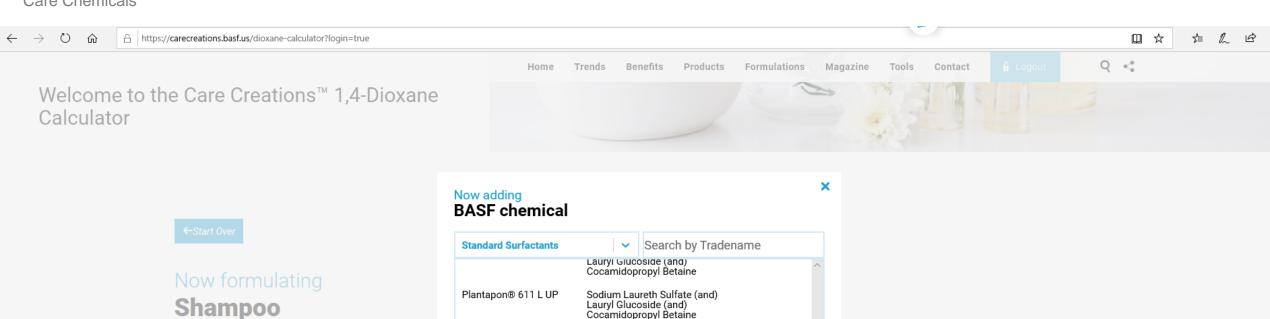




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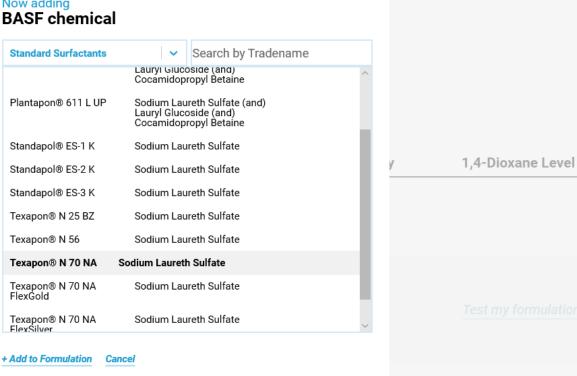






To get started, click on a button below to add a BASE of



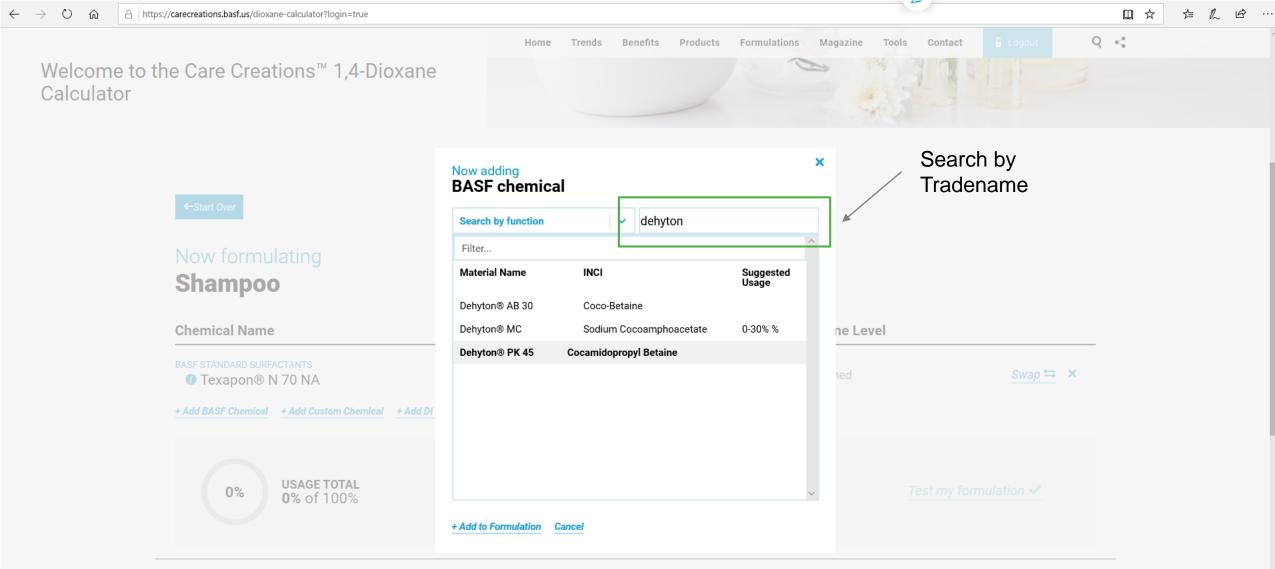


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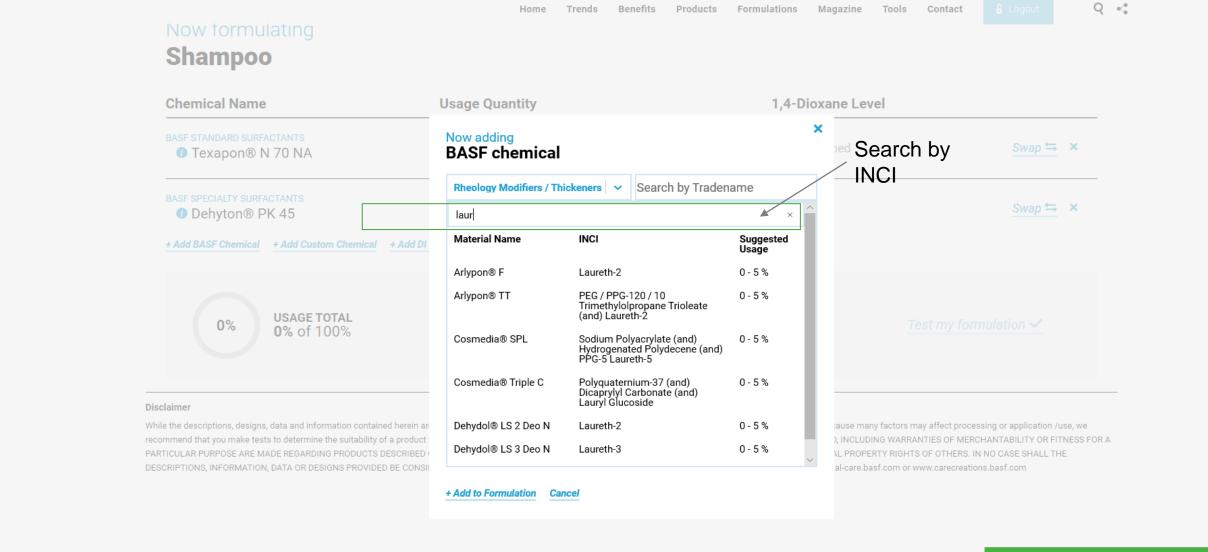


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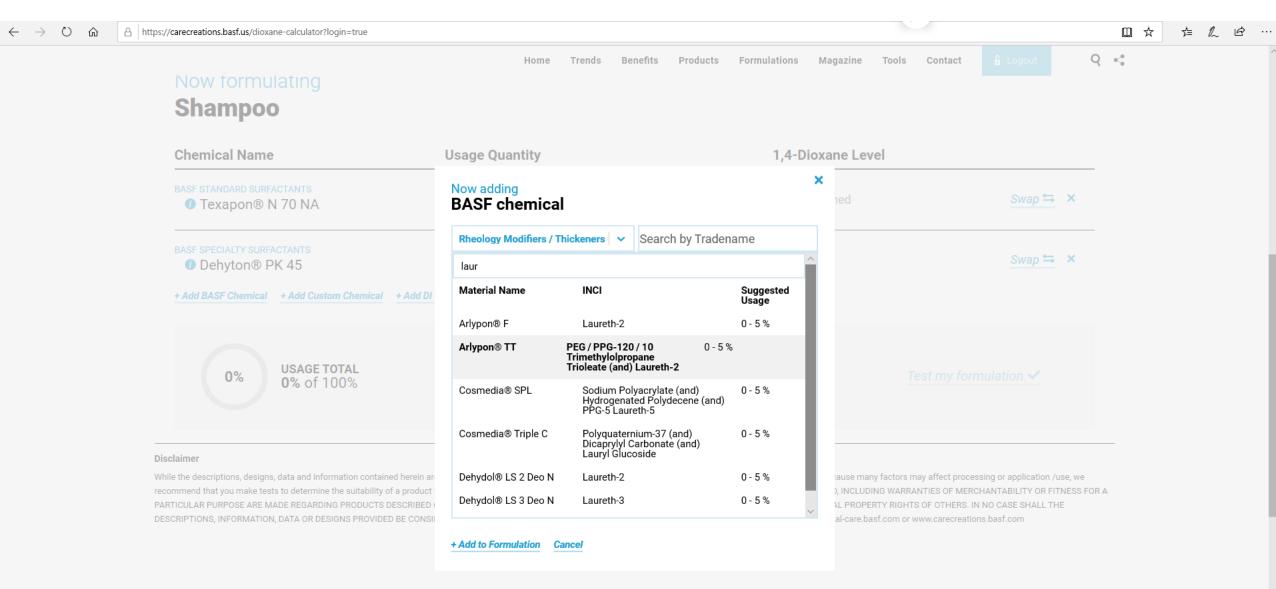




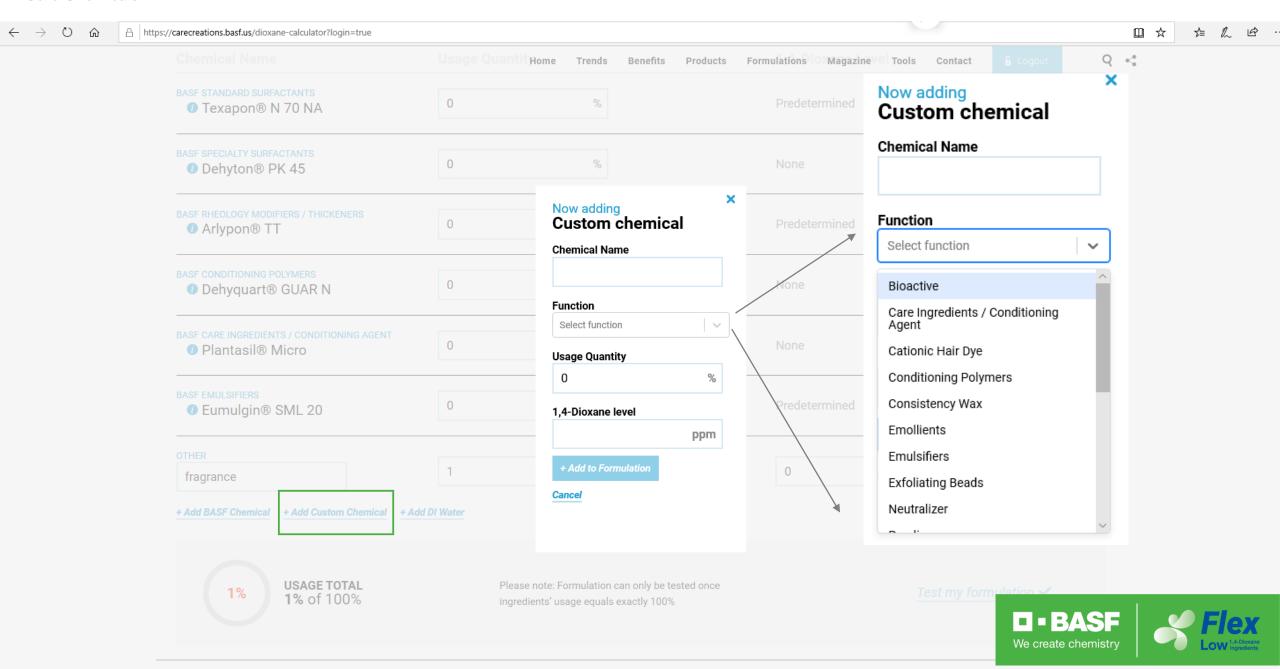




△ https://carecreations.basf.us/dioxane-calculator?login=true



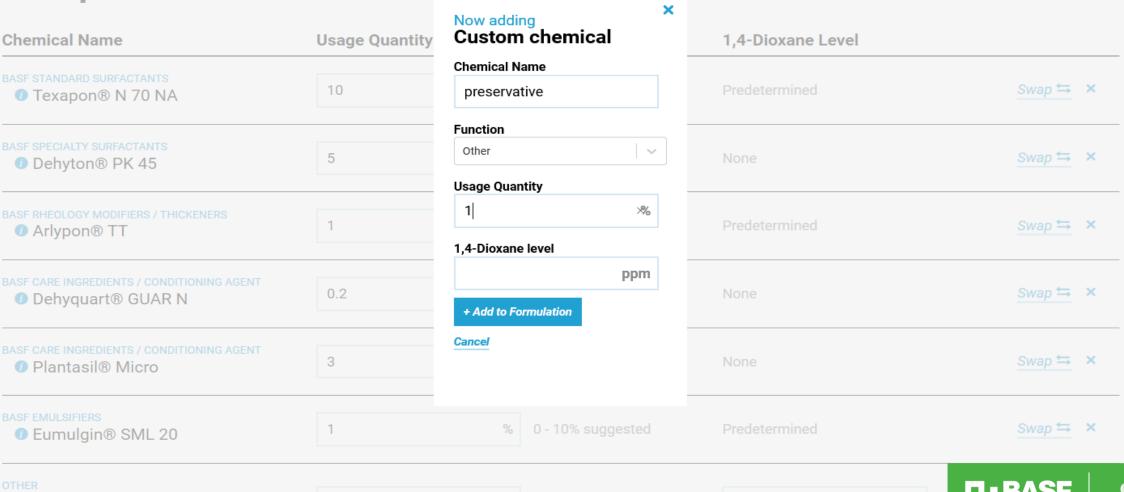




Now formulating

Shampoo

Fragrance



0

Benefits

Products

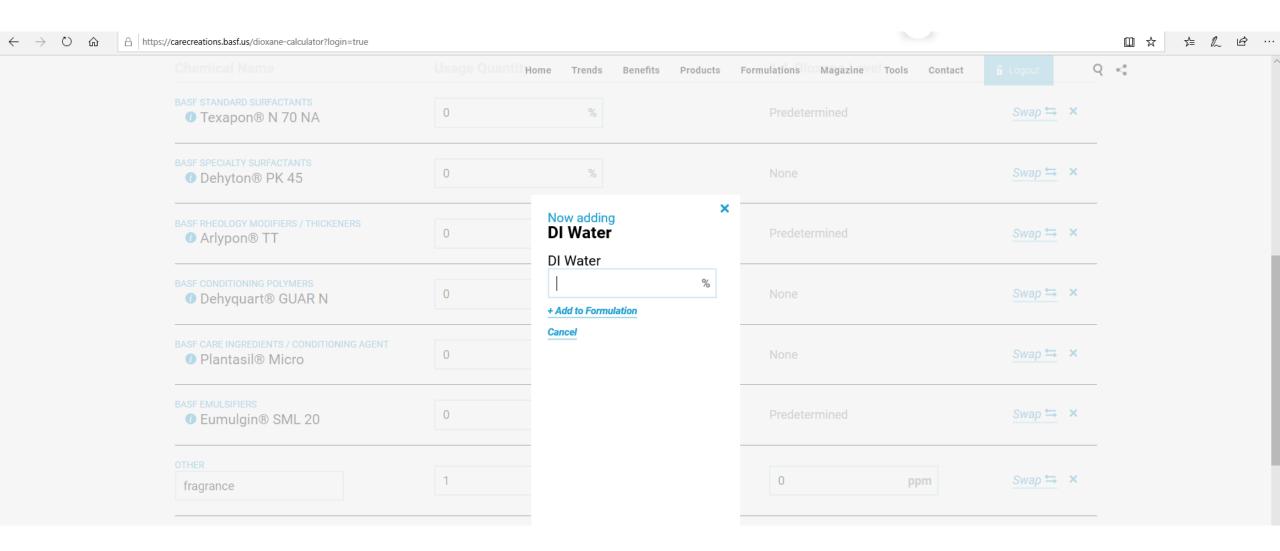


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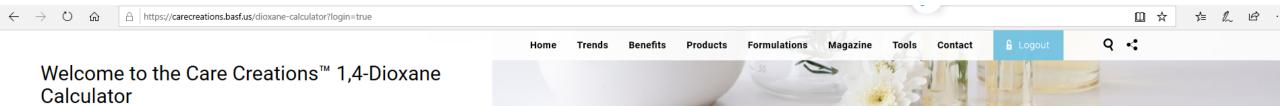


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Care Chemicals







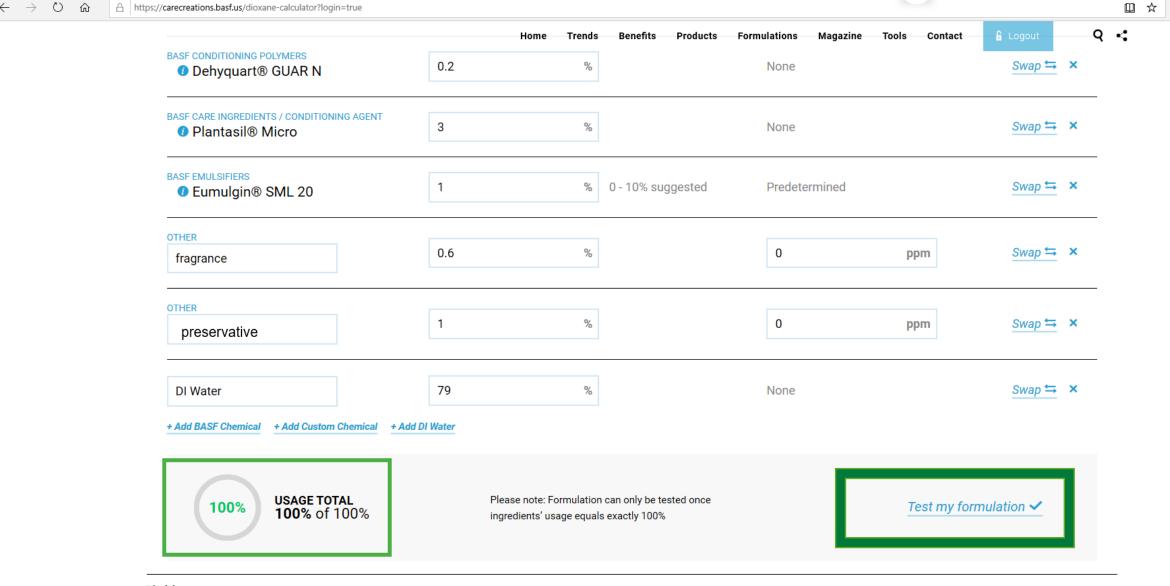


Now formulating

Shampoo

RASE EMILI SIFIEDS

Chemical Name	Usage Quantity		1,4-Dioxane Level	
BASF STANDARD SURFACTANTS Texapon® N 70 NA	10	%	Predetermined	<u>Swap</u> ×
BASE SPECIALTY SURFACTANTS Dehyton® PK 45	5	%	None	Swap ≒ ×
ASF RHEOLOGY MODIFIERS / THICKENERS O Arlypon® TT	1	% 0	5% suggested Predetermined	Swap ≒ ×
BASF CONDITIONING POLYMERS Dehyquart® GUAR N	0.2	%	None	<u>Swap</u> ★
BASF CARE INGREDIENTS / CONDITIONING AGENT Plantasil® Micro	3	%	None	■ BASE We create chemistr



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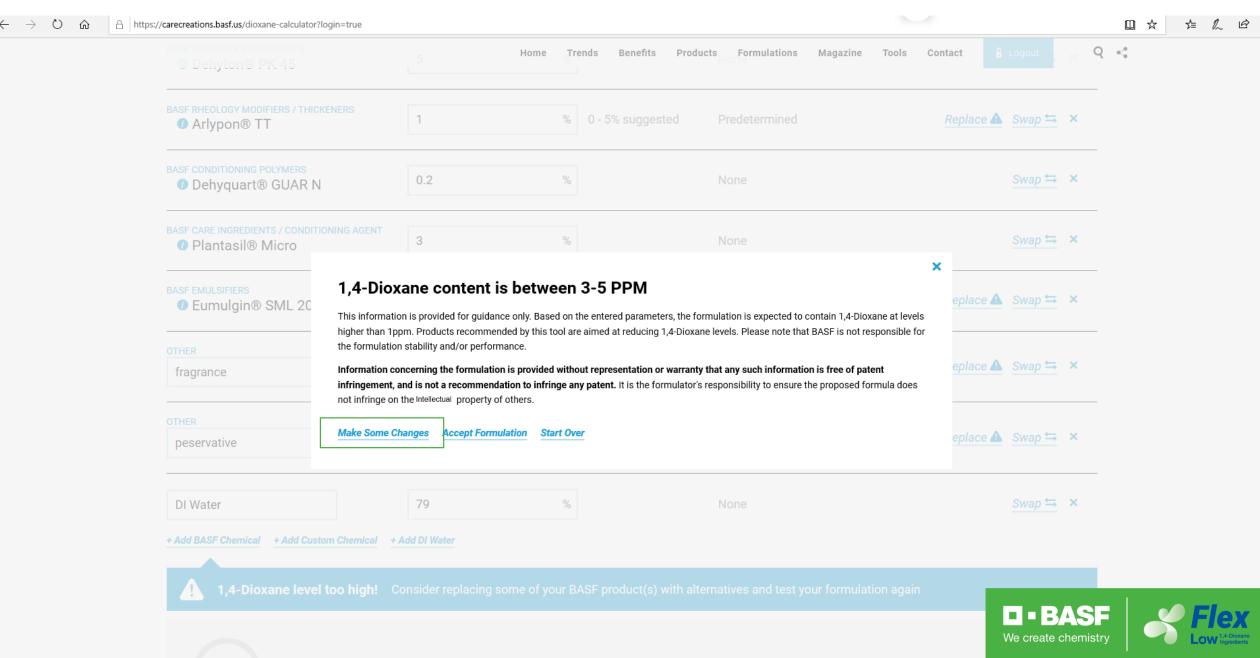
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Care Chemicals Intellectual

USAGE TOTAL

100% of 100%

100%



Please note: Formulation can only be tested once

Test my formulation 🗸

None

Swap ≒ ×

Snampoo

O DI Water

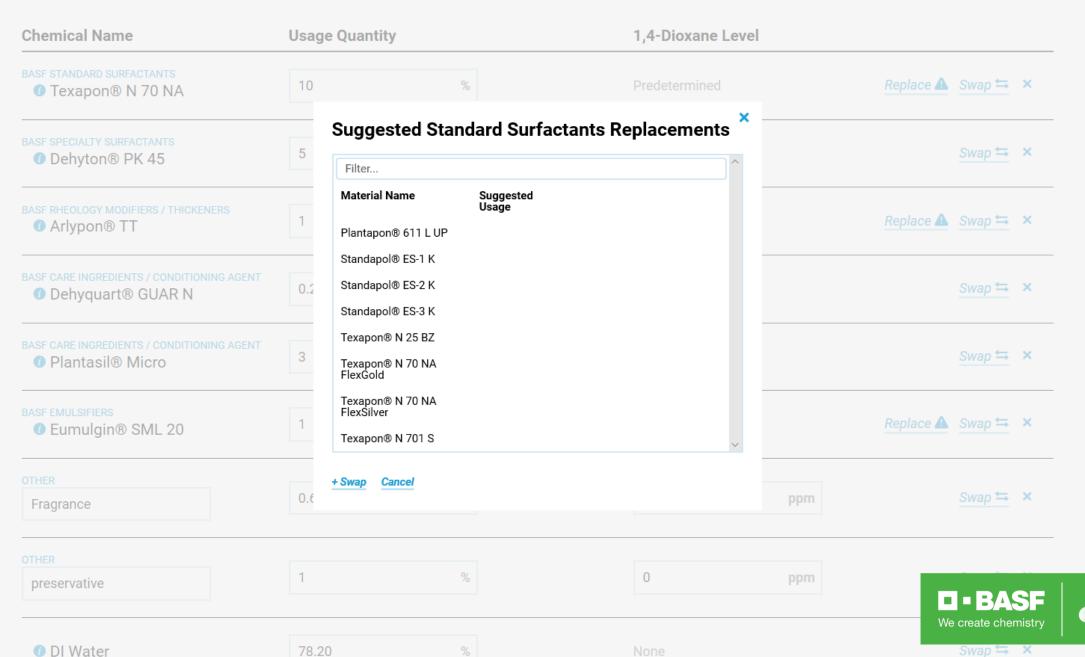
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Care

Chemical Name	Usage Quantity			1,4-Dioxane Leve	el			
BASF STANDARD SURFACTANTS Texapon® N 70 NA	10	%		Predetermined		Replace A	Swap ≒	×
BASF SPECIALTY SURFACTANTS 1 Dehyton® PK 45	5	%		None			Swap ≒	×
BASF RHEOLOGY MODIFIERS / THICKENERS Arlypon® TT	1	%	0 - 5% suggested	Predetermined		Replace 🗘	Swap ≒	×
BASF CARE INGREDIENTS / CONDITIONING AGENT Dehyquart® GUAR N	0.2	%		None			Swap ≒	×
BASF CARE INGREDIENTS / CONDITIONING AGENT Plantasil® Micro	3	%		None			Swap ≒	×
BASF EMULSIFIERS DEUmulgin® SML 20	1	%	0 - 10% suggested	Predetermined		Replace 🛕	Swap ≒	×
DTHER Fragrance	0.6	%		0	ppm		Swap ≒	×
DTHER preservative	1	%		0	ppm	□- B/	ASF	•
						We create c		

Snampoo

Care



Care Che

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Benefits Prod

Products Formulations

Magazine

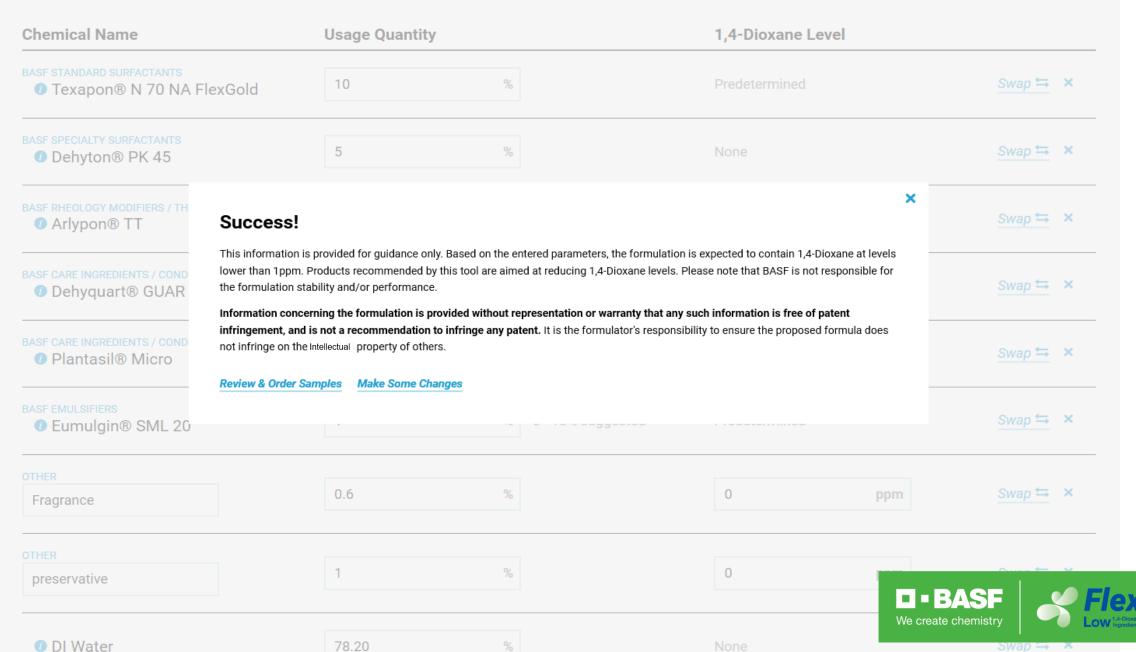
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Contact

Logout

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Snampoo



Chemical Name	Usage Quantity	
BASF STANDARD SURFACTANTS Texapon® N 70 NA FlexGold	10.00%	Learn More → Request Sample �
BASF SPECIALTY SURFACTANTS Dehyton® PK 45	5.00%	Learn More → Request Sample �
BASF RHEOLOGY MODIFIERS / THICKENERS Arlypon® TT	1.00%	Learn More → Request Sample �
BASF CARE INGREDIENTS / CONDITIONING AGENT Dehyquart® GUAR N	0.20%	Learn More → Request Sample �
BASF CARE INGREDIENTS / CONDITIONING AGENT Plantasil® Micro	3.00%	Learn More → Request Sample �
BASF EMULSIFIERS Eumulgin® SML 20	1.00%	Learn More → Request Sample �
OTHER Fragrance	0.60%	
OTHER preservative	1.00%	
DI Water	78.20%	

Email me a copy of my formulation



Home Trends Benefits Products

Dehy
INCI: C
Dehyton® E
pharmaceu
are achieve
properties a

Dehyton[®] PK 45

Formulations

Magazine

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Contact

Amphoteric Surfactant

INCI: Cocamidopropyl Betaine

Dehyton® PK 45 is an amphoteric surfactant that is suitable for universal application in cosmetic and pharmaceutical surfactant preparations. In combination with anionic surfactants, synergistic effects are achieved which lead to a dermatological improvement of the consumer product. The application properties are comparable with the conventional Cocamidopropylbetaine-types.

Request a Sample for Dehyton® PK 45

Products > Dehyton® PK 45

Stories

Clean cleansing is socially responsible - and in high demand

Formulations

Cosmopolitan Shower Peel

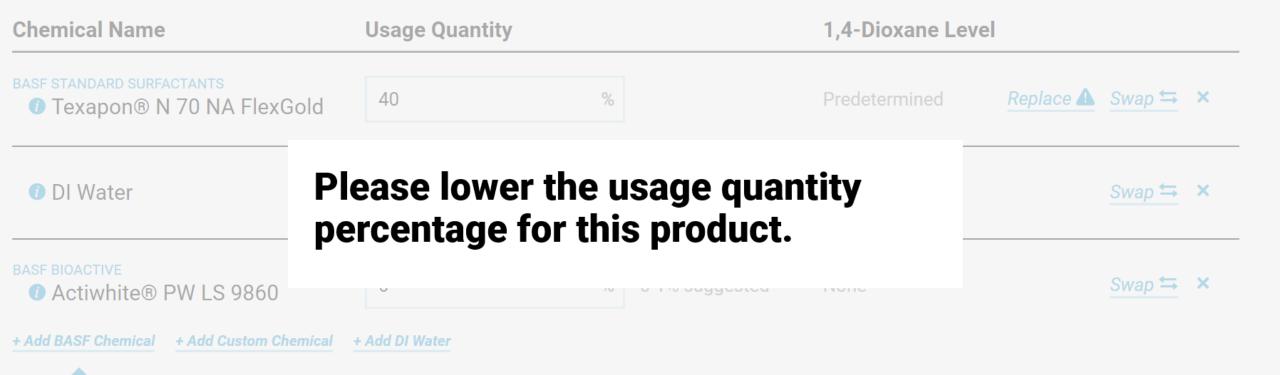
Raise the Bar Solid Shampoo



When you choose the lowest 1,4- Dioxane ingredient and still not be compliant because of the formulation usage %

Now formulating

Conditioner







Poll Question

Will the 1,4 –Dioxane Calculator be useful for you/ your company?

- 1) Yes
- 2) No
- 3) Maybe





The Ingredient Insider Tool

Formulate for **Clean Beauty** with the **BASF Ingredient Insider Tool**. Access the top public chemical lists of clean ingredients all in one place.



For the Clean Beauty Formulator

This tool comes to assist scientists wishing to formulate in compliance with any of the industry lists below. Happy Formulating!



Clean at Sephora

+ Add List View Full List Details



Credo Clean Standard

+ Add List View Full List Details



Whole Foods

+ Add List View Full List Details



amazon

Amazon Chemicals Policy

+ Add List View Full List Details



Target Clean

+ Add List View Full List Details



Rite Aid

+ Add List View Full List Details



NPA Illustrative List

A list of BASF products certified by NPA

+ Add List View Full List Details



COSMOS

A list of BASF products certified by COSMOS

+ Add List View Full List Details



REACH SIN List

+ Add List View Full List Details



Campaign for Safe Cosmetics Red list

+ Add List View Full List Details



Chemicals of Concern

+ Add List View Full List Details



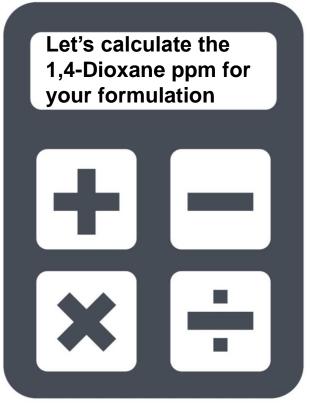
Cosmetic Ingredient Database (COSING) Annex II

+ Add List View Full List Details



Thank you







Email us at - <u>beautycare-na@basf.com</u>

Our website - https://carecreations.basf.us/

Link to 1,4-Dioxane Online Calculator - https://carecreations.basf.us/dioxane-calculator



I BASF

We create chemistry