ReReview Summaries

Sodium Carbonate
VA/Crotonates Copolymer

EXPERT PANEL MEETING
March 28-29, 2024

Safety Assessment of Sodium Sesquicarbonate, Sodium Bicarbonate, and Sodium Carbonate as Used in Cosmetics

Status: Re-Review Summary for Panel Consideration
Release Date: March 4, 2024
Panel Meeting Date: March 28-29, 2024

History
Original Safety Assessment – published 1987
Original Re-Review – published 2006
Most Recent Action – new data considered at the December 2023 Panel meeting; not re-opened

The Expert Panel for Cosmetic Ingredient Safety members are: Chair, Wilma F. Bergfeld, M.D., F.A.C.P.; Donald V. Belsito, M.D.; David E. Cohen, M.D.; Curtis D. Klaassen, Ph.D.; Allan E. Rettie, Ph.D.; David Ross, Ph.D.; Thomas J. Slaga, Ph.D.; Paul W. Snyder, D.V.M., Ph.D.; and Susan C. Tilton, Ph.D. The Cosmetic Ingredient Review (CIR) Executive Director is Bart Heldreth, Ph.D., and the Senior Director is Monice Fiume.

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SODIUM SESQUICARBONATE, SODIUM CARBONATE, AND SODIUM BICARBONATE

The Expert Panel for Cosmetic Ingredient Safety (Panel) first published the Final Report on the Safety Assessment of Sodium Sesquicarbonate, Sodium Bicarbonate, and Sodium Carbonate in 1987.[1] The Panel concluded that these 3 ingredients were "safe as presently used" in cosmetics. Upon re-review in March 2005, the Panel reaffirmed the original conclusion, as published in 2006.[2]

Because it has been at least 15 years since the prior re-review was published, in accordance with Cosmetic Ingredient Review (CIR) Procedures, the Panel again determined whether the safety assessment should be reopened. At the December 2023 meeting, the Panel considered updated (2023) information regarding product types and ingredient use frequencies as reported in the US Food and Drug Administration (FDA) Voluntary Cosmetic Registration Program (VCRP) database[3] and maximum use concentrations provided in response to the survey conducted by the Personal Care Products Council.[4] The frequencies of use for both Sodium Bicarbonate and Sodium Carbonate have increased since the previous rereview was conducted; of note, the frequency of use of Sodium Bicarbonate increased from 66 uses in 2002 to 571 reported uses in 2023. The frequency of use of Sodium Sesquicarbonate has decreased. Additionally, the maximum reported concentrations of use of all 3 ingredients have decreased since the previous re-review. The cumulative frequency and concentration of use data are presented in Table 1.

In October 2023, an extensive search of the world's literature was performed for studies dated 2000 forward, and new data were found.[5-20] European Union regulations, toxicology, genotoxicity, carcinogenicity, anti-carcinogenicity, dermal irritation, ocular irritation, and clinical studies were considered by the Panel. The Panel observed that although a considerable amount of new data were available, no findings were noted that would change the existing conclusion.

In summary, the Panel reviewed 2023 frequency and concentration of use data, in addition to any new, available, relevant safety data. Considering this information, as well as the information provided in the original safety assessment and the prior re-review document, the Panel reaffirmed the 1987 conclusion. The Panel discussed the possibility for these ingredients to be used in cosmetic products which may be incidentally inhaled. A detailed discussion and summary of the Panel's approach to evaluating incidental inhalation exposures to ingredients in cosmetic products is available at https://www.cir-safety.org/cir-findings.

Table 1. Frequency (2023/2001)[2,3] and concentration (2023/2004)[2,4] of use according to likely duration and exposure and by product category

	Sodium Sesquicarbonate				Sodium Bicarbonate				Sodium Carbonate			
	# of Uses		*Max Conc of Use (%)*		*# of Uses*		*Max Conc of Use (%)*		*# of Uses*		*Max Conc of Use (%)*	
	2023[3]	**2002[2]**	**2023[4]**	**2004[2]**	**2023[3]**	**2002[2]**	**2023[4]**	**2004[2]**	**2023[3]**	**2002[2]**	**2023[4]**	**2004[2]**
Totals*	**9**	**24**	**0.5-69.1**	**2-90**	**571**	**66*****	**0.00001-67.6**	**0.006-95**	**76**	**21**	**0.0002-48.7**	**0.000002-51**
summarized by likely duration and exposure**												
Duration of Use												
Leave-On	*2*	*1*	*35*	*35-59*	*142*	*26*	*0.0003-55.1*	*0.01-56*	*22*	*7*	*0.0002-0.044*	*0.000002-0.6*
Rinse-Off	*1*	*3*	*34.9*	*NR*	*132*	*33*	*0.00001-66.4*	*0.006-95*	*16*	*10*	*0.0002-2.3*	*0.01-32*
Diluted for (Bath) Use	*6*	*20*	*0.5-69.1*	*2-90*	*297*	*7*	*63.2-67.6*	*1-64*	*38*	*4*	*0.0012-48.7*	*0.009-51*
Exposure Type												
Eye Area	NR	NR	NR	NR	NR	8	0.012	0.04-0.2	4	NR	0.00068	0.004-0.3
Incidental Ingestion	NR	1	NR	NR	69	13***	0.35-66.4	0.03-95	6	3	0.0009-2	2***
Incidental Inhalation-Spray	NR	1	35[a]	35-59[a]	34[a],18[b]	6[a]; 4[b]	0.001;1-55.1[a]	0.1,0.2-0.4[a], 0.01-56[b]	1; 6[a]; 11[b]	1[a]; 2[b]	0.0009-0.19[b]	0.03; 0.008[a]; 0.000002-0.01[b]
Incidental Inhalation-Powder	NR	NR	35[a]	35-59[a]	18b,1[c]	9; 6[a];1[c]	20;1-55.1[a]; 0.0003-7[c]	20,0.01-56b,5[c]	6[a]	1[a]	0.0004[c]	0.008[a]
Dermal Contact	8	23	0.5-69.1	2-90	495	34	0.00001-67.6	0.006-64	69	12	0.0002-48.7	0.002-51
Deodorant (underarm)	NR	NR	NR	NR	80[b]	NR	0.05-15 (not spray)	0.01-15[b]	NR	NR	0.012-0.016 (not spray)	0.002[b]
Hair - Non-Coloring	NR	NR	NR	NR	5	3	0.05-3.4	0.09-10	NR	4	0.0002-2.3	0.000002-1
Hair-Coloring	NR	NR	NR	NR	NR	8	6	0.1-10	1	2	1-2	0.02-25
Nail	1	NR	NR	NR	2	NR	35.5	39	NR	NR	NR	0.6
Mucous Membrane	7	23	0.5-69.1	2-90	393	33	0.00001-67.6	0.03-95	52	10	0.0009-48.7	0.009-51
Baby Products	NR	NR	NR	NR	1	1	0.001	5	NR	NR	0.044	NR
as reported by product category												
Baby Products												
Baby Lotions/Oils/Powders/Creams					1	1	NR	5				
Other Baby Products					NR	NR	0.001 (wipes, leave-on)	NR	NR	NR	0.044	NR
Bath Preparations (diluted for use)												
Bath Oils, Tablets, and Salts	2	16	0.5-69.1	2-90	261	7	63.2-67.6	30-64	36	4	13.5-48.7	40-51
Bubble Baths	NR	2	50	18	15	NR	NR	5-52	1	NR	NR	7-39
Bath Capsules					1	NR	NR	49				
Other Bath Preparations	4	2	NR	10-35	20	NR	63.3	1-64	1	NR	0.0012-42.3	0.009-39
Eye Makeup Preparations												
Eyebrow Pencil					NR	NR	NR	0.2	NR	NR	0.00068	0.2
Eyeliner					NR	1	NR	0.04-0.1	1	NR	NR	NR
Eye Shadow									NR	NR	NR	0.3
Eye Lotion									NR	NR	NR	0.004
Mascara					NR	6	0.012	0.2	1	NR	NR	0.2
Other Eye Makeup Preparations					NR	1	NR	NR	2	NR	NR	NR
Fragrance Preparations												
Cologne and Toilet water Spray					NR	NR	0.001	NR	1	NR	NR	0.03
Powders (dusting/talcum, excl aftershave talc)					NR	9	20	20				
Other Fragrances	NR	1	NR	NR								
Hair Preparations (non-coloring)												
Hair Conditioner					NR	NR	0.05	5	NR	2	0.0002	0.01
Hair Straighteners									NR	NR	2.3	NR
Permanent Waves					NR	3	0.8	10	NR	1	NR	NR
Rinses (non-coloring)												
Shampoos (non-coloring)					4	NR	3.4	0.09	NR	1	0.0053-0.41	0.08

Table 1. Frequency (2023/2001)[2,3] and concentration (2023/2004)[2,4] of use according to likely duration and exposure and by product category

	Sodium Sesquicarbonate				Sodium Bicarbonate				Sodium Carbonate			
	# of Uses		*Max Conc of Use (%)*		*# of Uses*		*Max Conc of Use (%)*		*# of Uses*		*Max Conc of Use (%)*	
	2023[3]	**2002[2]**	**2023[4]**	**2004[2]**	**2023[3]**	**2002[2]**	**2023[4]**	**2004[2]**	**2023[3]**	**2002[2]**	**2023[4]**	**2004[2]**
Tonics, Dressings, and Other Hair Grooming Aids									NR	NR	NR	0.000002-0.01
Wave Sets												1
Other Hair Preparations					1	NR	NR	NR				
Hair Coloring Preparations												
Hair Dyes and Colors					NR	8	6	NR	NR	2	1	0.1-0.6
Hair Rinses (coloring)									NR	NR	NR	0.02
Hair Color Sprays (aerosol)												
Hair Bleaches					NR	NR	NR	0.1-10	1	NR	NR	25
Other Hair Coloring Preparation									NR	NR	2	1
Makeup Preparations												
Blushers (all types)									NR	NR	NR	0.03
Foundations					NR	NR	NR	0.09	NR	1	NR	0.3
Lipstick					NR	NR	NR	0.03-1	NR	3	NR	NR
Other Makeup Preparations					1	NR	NR	NR				
Manicuring Preparations (Nail)												
Other Manicuring Preparations	1	NR	NR	NR	2	NR	35.5	39	NR	NR	NR	0.6
Oral Hygiene Products												
Dentifrices					42	10	0.35-66.4	3-95	2	NR	0.65-2	2
Mouthwashes and Breath Fresheners					9	2	NR	0.1	1	NR	0.0009	NR
Other Oral Hygiene Products					18	1	NR	0.5	2	NR	NR	22[d]
Personal Cleanliness Products												
Bath Soaps and Detergents	NR	2	NR	NR	20	2	0.00001-43.5	25-54	3	1	0.0074-0.4	3-32
Deodorants (underarm)					80	NR	0.05-15 (not spray)	0.01-15	NR	NR	0.012-0.016 (not spray)	0.002
Douches					NR	2	NR	NR				
Feminine Deodorants					2	2	1	NR				
Other Personal Cleanliness Products	1	1	34.9 (rinse-off)	NR	5	3	1	0.07-56	6	2	NR	NR
Shaving Preparations												
Preshave Lotions (all types)					1	NR	NR	NR				
Shaving Cream					1	NR	NR	0.006	NR	NR	0.0051	NR
Other Shaving Preparations					1	1	1.3	NR	NR	NR	0.0053	NR
Skin Care Preparations												
Cleansing					29	NR	0.01-43.5	0.04-26	1	1	0.003-0.93	0.02-0.2
Face and Neck (exc shave)					11	NR	NR	0.01-7	4	NR	NR	0.008
Body and Hand (exc shave)					5	NR	0.0003-7 (not spray)	10	2	1	0.0004 (not spray)	NR
Foot Powders and Sprays	NR	NR	35	35-59	NR	4	55.1	25-56				
Moisturizing					20	NR	11.8 (not spray)	0.4	7	2	0.0002 (not spray)	NR
Night (Spray)									1	NR	NR	NR
Paste Masks (mud packs)					2	1	0.02-4	61				
Skin Fresheners					4	2	NR	NR	2	NR	0.019	NR
Other Skin Care Preparations	1	NR	NR	NR	14	4	0.005-30.8	2-5[d]	1	NR	NR	NR
Suntan Preparations												
Suntan Gels, Creams, and Liquids					NR	NR	NR	0.2				
Other Suntan Preparations					1	NR	NR	NR				

NR – not reported
*Because each ingredient may be used in cosmetics with multiple exposure types, the sum of all exposure types may not equal the sum of total uses.
**likely duration and exposure are derived based on product category (see Use Categorization https://www.cir-safety.org/cir-findings)
*** frequency and concentration of use of a denture cleaner were reported in 2002/2004; because this is not currently a product category, these data were omitted from the table
[a] Not specified whether a spray or a powder, but it is possible the use can be as a spray or a powder, therefore the information is captured in both categories.
[b] It is possible these products are sprays, but it is not specified whether the reported uses are sprays.
[c] It is possible these products are powders, but it is not specified whether the reported uses are powders.

REFERENCES

1. Elder RL (ed). the Final Report on the Safety Assessment of Sodium Sesquicarbonate, Sodium Bicarbonate, and Sodium Carbonate. . *J Am Coll Toxicol*. 1987;6(1):121-138.

2. Andersen FA (ed.). Annual Review of Cosmetic Ingredient Safety Assessments 2004/2005. Sodium Sesquicarbonate, Sodium Bicarbonate, and Sodium Carbonate. *Int J Toxicol* 2006;25(S2):68,70-62.

3. U.S. Food and Drug Administration (FDA), Center for Food Safety and Applied Nutrition (CFSAN). 2023. Voluntary Cosmetic Registration Program- Frequency of use of Cosmetic Ingredients. Obtained under the Freedom of Information Act from CFSAN; requested as "Frequency of Use Data" January 4, 2023; received February 2, 2023.

4. Personal Care Products Council. 2023. Concentration of Use by FDA Product Category: Sodium Sesquicarbonate, Sodium Bicarbonate, and Sodium Carbonate. Unpublished data submitted by Personal Care Products Council on February 24, 2023.

5. European Chemical Agency. Sodium carbonate (CAS No. 497-19-8). https://echa.europa.eu/registration-dossier/-/registered-dossier/15432. Last Updated March 13, 2023. Accessed October 22, 2023.

6. European Chemical Agency. Sodium hydrogencarbonate (CAS No. 144-55-8; Sodium Bicarbonate). https://echa.europa.eu/registration-dossier/-/registered-dossier/16157. Last Updated March 9, 2023. Accessed October 23, 2023.

7. European Chemical Agency. Trisodium hydrogendicarbonate, (CAS no. 533-96-0; Sodium Sesquicarbonate). https://echa.europa.eu/registration-dossier/-/registered-dossier/2170. Last Updated December 17, 2015. Accessed October 20, 2023.

8. Organisation for Economic Co-Operation and Development (OECD). SIDS Initial Assessment Report for SIAM 15: Sodium Carbonate. CAS No. 497-19-8. 2002. https://hpvchemicals.oecd.org/ui/handler.axd?id=5a6538be-aa30-4a72-ad1c-906d9b5413bd.

9. Organisation for Economic Co-Operation and Development (OECD). SIDS Initial Assessment Report for SIAM 15: Sodium Bicarbonate. CAS No. 144-55-8. 2002. https://hpvchemicals.oecd.org/UI/handler.axd?id=e1859b4e-f6a4-4da8-8945-6294354cdf45.

10. EFSA Panel on Additives and Products or Substances used in Animal Feed (FEEDAP). Scientific Opinion on the safety and efficacy of sodium carbonate (soda ash) for all species. *EFSA Journal*. 2010;8(7):1695

11. EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA). Scientific Opinion on the substantiation of health claims related to sodium bicarbonate and reducing gastric acid levels (ID 1653) pursuant to Article 13(1) of Regulation (EC) No 1924/2006. *EFSA Journal*. 2010;8(2):1472

12. EFSA CEF Panel (EFSA Panel on Food Contact Materials, Enzyme, Flavourings and Processing Aids). Scientific Opinion on the safety assessment of the active substances, sodium erythorbate, sodium carbonate, sodium bicarbonate, iron sulphate, activated carbon, cellulose, calcium hydroxide, calcium chloride and water, for use as active system in food contact materials. *EFSA Journal*. 2014;12(2):3571.

13. Fukushima S, Inoue T, Uwagawa S, Shibata MA, Ito N. Co-carcinogenic effects of $NaHCO_3$ on *o*-phenylphenol-induced rat bladder carcinogenesis. *Carcinogenesis*. 1989;10(9):1635-1640.

14. Griffith JF. Interlaboratory variations in the determination of acute oral LD_{50}. *Toxicol Appl Pharmacol*. 1964;6(Nov):726-730.

15. Ishidate M, Jr., Sofuni T, Yoshikawa K, et al. Primary mutagenicity screening of food additives currently used in Japan. *Food Chem Toxicol*. 1984;22(8):623-636.

16. Letscher-Bru V, Obszynski CM, Samsoen M, Sabou M, Waller J, Candolfi E. Antifungal activity of sodium bicarbonate against fungal agents causing superficial infections. *Mycopathologia*. 2013;175(1-2):153-158.

17. Mazzarello V, Piu G, Ferrari M, Piga G. Efficacy of a topical formulation of sodium bicarbonate in mild to moderate stable plaque psoriasis: a randomized, blinded, intrapatient, controlled study. *Dermatol Ther (Heidelb)*. 2019;9(3):497-503.

18. Mori D, Tsujikawa T, Sugiyama Y, et al. Extracellular acidity in tumor tissue upregulates programmed cell death protein 1 expression on tumor cells via proton-sensing G protein-coupled receptors. *Int J Cancer*. 2021;149(12):2116-2124.

19. Yamada M, Honma M. Summarized data of genotoxicity tests for designated food additives in Japan. *Genes Environ*. 2018;40:1-28.

20. Yang M, Zhong X, Yuan Y. Does baking soda function as a magic bullet for patients with cancer? A mini review. *Integr Cancer Ther*. 2020;19:1-7.

Safety Assessment of VA/Crotonates Copolymer as Used in Cosmetics

Status: Re-Review Summary for Panel Consideration
Release Date: March 4, 2024
Panel Meeting Date: March 28-29, 2024

History
Original Safety Assessment – published 1983
Original Re-Review – published 2006
Most Recent Action – new data considered at the December 2023 Panel meeting; not re-opened

The Expert Panel for Cosmetic Ingredient Safety members are: Chair, Wilma F. Bergfeld, M.D., F.A.C.P.; Donald V. Belsito, M.D.; David E. Cohen, M.D.; Curtis D. Klaassen, Ph.D.; Allan E. Rettie, Ph.D.; David Ross, Ph.D.; Thomas J. Slaga, Ph.D.; Paul W. Snyder, D.V.M., Ph.D.; and Susan C. Tilton, Ph.D. The Cosmetic Ingredient Review (CIR) Executive Director is Bart Heldreth, Ph.D., and the Senior Director is Monice Fiume. This summary was prepared by Preethi Raj, M.Sc., Senior Scientific Analyst/Writer, CIR.

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VA/CROTONATES COPOLYMER

The Expert Panel for Cosmetic Ingredient Safety (Panel) first published the Final Report on the Safety Assessment of VA/Crotonates Copolymer in 1983; at the time of the original review, this ingredient was named Vinyl Acetate/Crotonic Acid Copolymer.[1] The Panel concluded that VA/Crotonates Copolymer is safe as a cosmetic ingredient under the present practices of product and concentration use, as described in the safety assessment. Upon re-review in September 2002, the Panel reaffirmed the original conclusion, as published in 2006.[2]

Because it has been at least 15 years since the prior re-review was published, in accordance with Cosmetic Ingredient Review (CIR) Procedures, the Panel again determined whether the safety assessment should be reopened. At the December 2023 meeting, the Panel considered updated 2023 information regarding product types and ingredient use frequencies as reported in the US Food and Drug Administration (FDA) Voluntary Cosmetic Registration Program (VCRP) database[3] and maximum use concentrations provided in response to the survey conducted by the Personal Care Products Council.[4] Overall, the reported frequency of use and concentration of use decreased for VA/Crotonates Copolymer and no new use categories were reported. In 2002, 38 uses were reported, while 21 uses were reported in 2023; the maximum reported concentration of use in 2002 was at 11% in hair sprays, compared to 5.2% in a pump hair spray in 2023. The cumulative frequency and concentration of use data are presented in Table 1.

In October 2023, an extensive search of the world's literature was performed for studies dated 2000 forward, and no relevant new data were found. However, the Panel noted that occupational studies presented in the previous review confirmed a lack of long-term effects in workers exposed to 5 to 10 ppm vinyl acetate, with intermittent exposures near 50 ppm and acute exposures up to 300 ppm.

In summary, the Panel reviewed 2023 frequency and concentration of use data and noted the lack of any new, available, relevant safety data. Considering this information, as well as the information provided in the original safety assessment and the prior re-review document, the Panel reaffirmed the 1983 conclusion. The Panel discussed that this ingredient is used in pump hair spray formulations, which may be incidentally inhaled. A detailed discussion and summary of the Panel's approach to evaluating incidental inhalation exposures to ingredients in cosmetic products is available at https://www.cir-safety.org/cir-findings.

Table 1. Frequency and concentration of use (2023/2002) of VA/Crotonates Copolymer according to likely duration and exposure and by product category

	# of Uses		*Max Conc of Use (%)*	
	2023[3]	**2002[2]**	**2023[4]**	**2002[2]**
Totals*	**21**	**38**	**1.5 – 5.2**	**0.05 - 11**
summarized by likely duration and exposure**				
Duration of Use				
Leave-On	*17*	*33*	*1.5 – 5.2*	*0.05 – 11*
Rinse-Off	*4*	*5*	*NR*	*2 - 9*
Diluted for (Bath) Use	*NR*	*NR*	*NR*	*9*
Exposure Type				
Eye Area	NR	5	NR	9
Incidental Ingestion	NR	NR	NR	NR
Incidental Inhalation-Spray	3; 13[a]	9; 10[a]	3 – 5.2; 1.5 – 3.8[a]	2 -11; 0.05 – 4[a]
Incidental Inhalation-Powder	NR	NR	NR	NR
Dermal Contact	NR	NR	NR	2 – 9
Deodorant (underarm)	NR	NR	NR	NR
Hair - Non-Coloring	21	33	1.5 – 5.2	0.05 - 11
Hair-Coloring	NR	NR	NR	5
Nail	NR	NR	NR	NR
Mucous Membrane	NR	NR	NR	9
Baby Products	NR	NR	NR	NR
as reported by product category				
Bath Preparations (diluted for use)				
Bath Capsules	NR	NR	NR	9
Eye Makeup Preparations				
Eye Makeup Remover	NR	NR	NR	9
Mascara	NR	5	NR	NR
Hair Preparations (non-coloring)				
Hair Conditioner	4	1	NR	NR
Hair Spray (aerosol fixatives)	3	9	pump spray: 3 – 5.2	2 - 11
Hair Straighteners	NR	1	NR	NR
Tonics, Dressings, and Other Hair Grooming Aids	13	10	1.5 – 3.8	0.05 - 4
Wave Sets	NR	3	NR	2
Other Hair Preparations	1	9	NR	2 – 3
Hair Coloring Preparations				
Hair Dyes and Colors (all types requiring caution statements and patch tests)	NR	NR	NR	5
Skin Care Preparations				
Moisturizing	NR	NR	NR	2

NR – not reported
*Because each ingredient may be used in cosmetics with multiple exposure types, the sum of all exposure types may not equal the sum of total uses.
**likely duration and exposure are derived based on product category (see Use Categorization https://www.cir-safety.org/cir-findings)
[a] It is possible these products are sprays, but it is not specified whether the reported uses are sprays.

REFERENCES

1. Elder RL (ed.). Final Report on the Safety Assessment of Vinyl Acetate/Crotonic Acid Copolymer. *J Am Coll Toxicol*. 1983;2(5):125-140.

2. Andersen FA (ed). Annual review of cosmetic ingredient safety assessments-2004/2005. Vinyl Acetate/Crotonic Acid Copolymer. *Int J Toxicol*. 2006;25(Suppl 2):87-89.

3. U.S. Food and Drug Administration Center for Food Safety & Applied Nutrition (CFSAN). 2023. Voluntary Cosmetic Registration Program - Frequency of Use of Cosmetic Ingredients (VCRP). Obtained under the Freedom of Information Act from CFSAN; requested as "Frequency of Use Data" January 4, 2023; received February 2, 2023.

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