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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OPP OFFICIAL RECORD
HEALTH EFFECTS DIVISION
SCIENTIFIC DATA REVIEWS
EPA SERIES 361

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

5/17/99

MEMORANDUM

SUBJECT: MSMA and DSMA; EPA Reg. Nos. 42519-1 and -7. PC Codes 013803 and 013802. List B Reregistration Case 2395. Supplemental Product Chemistry. DP Barcode D235020.

FROM: K. Dockter, Chemist
Reregistration Branch 2
Health Effects Division [7509C]

KD 5-17-99

THRU: Alan Nielsen, Branch Senior Scientist
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Al Nielsen

TO: Linda Werrell
Special Review and Reregistration Division [7508 C]

Attached are supplemental product chemistry data for MSMA and DSMA [monosodium and disodium methanearsonate]. The review was prepared by Dynamac Corporation under the supervision of RRB2, HED. The data assessment has undergone secondary and tertiary review and has been revised to reflect Agency policies. Several product chemistry data requirements remain outstanding; 6 for MSMA and 4 for DSMA.

Attachment: "Review of Product Chemistry, OPPTS 830 Series" [contains a 1-page
CONFIDENTIAL APPENDIX]

cc: RF, List B File, SF, Dockter, Locke, Mason, Sandvig, Linda Werrell; SRRD.

RD/I: RRB2 MSMA/DSMA RED Team members: S. Mason, R. Sandvig, R. Griffin.
7509C:RRB2:CM2:Rm712N:57886:KD/kd
MSMA/DSMA [904d.wpd]

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REVIEW OF PRODUCT CHEMISTRY, OPPTS 830 SERIES

Chemical Name (IUPAC, ANSI)	MSMA; monosodium methanearsonate and DSMA; disodium methanearsonate		
Chemical Number (CAS; PC Code)		<u>CAS No.</u>	<u>PC Code</u>
	MSMA	2163-80-6	013803
	DSMA	144-21-8	013802
Registration No.	42519-1 (MSMA) 42519-7 (DSMA)		
Type of Product (EP)	51% MSMA EP 81% DSMA EP		
DP Barcode	D235020		

Luxembourg-Pamol and the MAA Task Force Three have submitted product chemistry data in support of the reregistration of MSMA (1990; MRIDs 41602701 and 41610001, and 1992; MRID 42387801) and DSMA (1990; MRID 41602502, 1991; MRIDs 41976201 and 41976202; and 1992; MRID 42451102). MRIDs 41610001 and 41602502 were determined to be candidates for Phase 5 review in the MAA Phase 4 Reviews dated 3/26/91 by C. Olinger. We note that MRIDs 41976201 and 41976202 were previously reviewed (CBRS No. 8810, D170296, S. Funk, 1/13/92). The remaining submissions include data concerning the MSMA and DSMA TGAs and the 51% MSMA and 81% DSMA EPs; both EPs are manufactured by integrated systems. Because these are List B chemicals, review of product-specific data for the EPs is deferred pending issuance of the Reregistration Eligibility Decision.

GLN	Requirement	MRID	Status ¹	Details and/or Deficiency ²
830.1550	Product identity and composition		N/A	
830.1600	Description of materials used to produce the product	41602701 42387801	N	Information is required concerning the sources and specifications of the starting materials.
830.1620	Description of production process	41602701 42387801	A	
830.1670	Discussion of formation of impurities	41602701 42387801	A	
830.1700	Preliminary analysis		N	NG
830.1750	Certified limits		N/A	
830.1800	Enforcement analytical method		N/A	

¹ A = Acceptable; N = Unacceptable (see Deficiency); N/A = Not Applicable; NG = Not Given.
² Refer to CBI Appendix for details.

Table 1 [continued]				
GLN	Requirement	MRID	Status ¹	Result or Deficiency
830.6302	Color	41610001	A	White (100% PAI) Faint yellow (51% EP)
830.6303	Physical state	41610001	A	Crystalline solid (100% PAI) Liquid (51% EP)
830.6304	Odor	41610001	A	None (100% PAI and 51% EP)
830.6313	Stability	41610001	N	Data were generated using the 51% EP; the Phase 4 Review stated that the solid, pure TGAI must be used as the test material.
830.7000	pH	41610001	N	5.5-5.9 (51% EP) As stated in the Phase 4 review, the test method must be reported, and the registrant must resolve the discrepancy between the pH reported here and the value of 6.69 reported in MRID 41608107
830.7050	UV/Visible absorption		N	NG
830.7200	Melting point/ melting range		A	
830.7220	Boiling point/ boiling range		N/A	The TGAI is a solid.
830.7300	Density/ relative density/ bulk density		A	1.65 g/mL at 25 C (100% PAI) 1.535 g/mL at 20 C (51% EP)
830.7370	Dissociation constants in water	41610001	A	$K_a = 9.49 \times 10^{-10}$ at ambient conditions; $pK_a = 9.02$ (100% PAI; titration)
830.7550	Partition coefficient (n-octanol/water), shake flask method		N/A	According to the Phase 4 Review, data are not required.
830.7840	Water solubility: column elution method; shake flask method	41610001	A	<u>Solubility</u> g/100 mL at 25 C Water 104 Methanol 16 Hexane 0.00526 (100% PAI; shake-flask method with ion chromatography and potentiometric titration quantitation)
830.7950	Vapor pressure	41610001	N	1×10^{-5} Pa at 25 C (100% PAI) Information concerning the test method and supporting data are required.
¹ A = Acceptable; N = Unacceptable (see Deficiency); N/A = Not applicable; NG = Not Given.				

Table 2: DSMA TGAI.				
GLN	Requirement	MRID	Status ¹	Details and/or Deficiency ²
830.1550	Product identity and composition		N/A	
830.1600	Description of materials used to produce the product		N	NG
830.1620	Description of production process		A	
830.1670	Discussion of formation of impurities		N	NG
830.1700	Preliminary analysis		A	
830.1750	Certified limits		N/A	
830.1800	Enforcement analytical method		N/A	

¹ A = Acceptable; N = Unacceptable (see Deficiency); N/A = Not Applicable; NG = Not Given.
² Refer to CBI Appendix for details.

Table 2 (continued)				
GLN	Requirement	MRID	Status ¹	Result or Deficiency
830.6302	Color	42451102	A	White (100% PAI and 81% TGAI/EP)
830.6303	Physical state	42451102	A	Crystalline (100% PAI and 81% TGAI/EP)
830.6304	Odor	42451102	A	None (100% PAI and 81% TGAI/EP)
830.6313	Stability		N	NG
830.7000	pH		A	
830.7050	UV/Visible absorption		N	NG
830.7200	Melting point/ melting range		A	
830.7220	Boiling point/ boiling range		N/A	TGAI is a solid at room temperature.
830.7300	Density/ relative density/ bulk density	42451102	A	Bulk density = 1.04 g/mL (81% TGAI/EP)
830.7370	Dissociation constants in water		A	
830.7550	Partition coefficient (n-octanol/water), shake flask method		A	

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Table 2 (continued)				
GLN	Requirement	MRID	Status ¹	Result or Deficiency
830.7840	Water solubility: column elution method; shake flask method	41602502	A	Solubility g/100 mL at 25 C Water 34.1 Methanol 26.0 Hexane 0.00245 (81.97% TGA; shake-flask method with HPLC quantitation)
830.7950	Vapor pressure		A	

¹ A = Acceptable; N = Unacceptable (see Deficiency); N/A = Not applicable; NG = Not Given.

Attachment: Confidential Appendix - one page