

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460**

OFFICE OF PREVENTION, PESTICIDES, AND TOXIC SUBSTANCES



9/25/07

**MEMORANDUM**

**SUBJECT:** Product Chemistry Science Chapter For: SODIUM FLUORIDE  
Reregistration Eligibility Decision (RED)

**From:** A. Najm Shamim, PhD, Chemist  
Regulatory Management Branch II  
Antimicrobials Division (7510P)

**To:** Timothy McMahon, PhD, Risk Assessor for Sodium Fluoride  
RED  
Antimicrobials Division (7510P)

And

Sanyvette Willaims, D.V.D., CRM for Sodium Fluoride RED  
Antimicrobials Division (7510P)

**Thru:** Mark Hartman, Chief  
Regulatory Management Branch II  
Antimicrobials Division (7510P)

PRODUCT CHEMISTRY OF SODIUM FLUORIDE

Parameter	Result	MRID
Formula Weight	42.00	43563101
Melting Point	993 ° C	43563101
Boiling Point	1704 ° C	43563101
Vapor Pressure	5.43 x 10 <sup>-26</sup> mm Hg (25 ° C) <sup>1*</sup>	
Solubility	Water: 4.10 g/100 ml; at 15°C, 4.3 g/ 100 ml at 25 ° C. Alcohol: Insoluble	43563101
pH	Slightly Alkaline	
Density	2.55 g/cm <sup>3</sup>	43563101
Log K <sub>OW</sub>	-0.77 <sup>1</sup>	
Henry Law Constant (air/water partition constant)	5.04 x 10 <sup>-33</sup> atm m <sup>3</sup> /mole <sup>1</sup>	

Chemical Name: Sodium Fluoride  
 Common Names: Chemifluoro, Dentafluoro, Villiaumite  
 Chemical Formula: NaF  
 CAS#: 7681-49-4

<sup>1</sup> The values have been taken from the US EPA's EPI Suite Modeling Program, Developed by OPPT

- Vapor pressure as reported in study report (MRID 43563101) = 1 mm Hg (1077 ° C).

Sources for the remaining characteristics are:

**Bibliography**

- Hawley's Condensed Chemical Dictionary, 13<sup>th</sup> Edition, Editor: Richard Lewis, Sr; John Wiley Publishers)
- Merck Index, 12 Edition
  - MRID 43563101. Muchow, T. (1994). Product Chemistry Data: Sodium Fluoride. Unpublished study prepared by Osmose Wood Preserving, Inc. 27 p