



U.S. Department
of Transportation
**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

January 7, 2026

Jeanne Enaux
Head of Product Compliance US
EMD Electronics
116 Fairfield Road
Princeton, NJ 08540

Reference No. 25-0083

Dear Ms. Enaux:

This letter is in response to your June 23, 2025 email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the term “surfactant” with respect to the use of “UN2927, Toxic liquid, corrosive, organic, n.o.s.” for solutions containing tetramethylammonium hydroxide (TMAH). You ask whether a surfactant includes all substances that can potentially accelerate dermal uptake, or if the term refers only to substances that have hydrophobic-hydrophilic capability.

For the purposes of classifying a non-aqueous solution of TMAH, the HMR does not define the term “surfactant.” However, the term generally refers to amphiphilic substances (containing both hydrophobic and hydrophilic parts), which reduce surface tension in liquids, and not the substances’ potential to accelerate dermal uptake. In accordance with § 173.22 of the HMR, it is the shipper’s responsibility to properly classify a hazardous material. Note that if a mixture contains a substance that can potentially accelerate dermal uptake, the shipper must use the classification criteria of the HMR to classify the mixture and then select a proper shipping name (e.g., UN2927, Toxic liquid, corrosive, organic, n.o.s.) in accordance with § 172.101(c)(10).

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

Dirk DerKinderen
Chief, Standards Development Branch
Standards and Rulemaking Division

From: Jeanne Enaux <jeanne.enuaux@emdgroup.com>
Sent: Monday, June 23, 2025 11:40 AM
To: INFOCNTR (PHMSA) <INFOCNTR.INFOCNTR@dot.gov>
Subject: LETTER OF INTERPRETATION REQUEST

Good morning,

We have an inquiry regarding the DG classification law and would appreciate your assistance in clarifying its requirements.

Beginning of 2025 updated regulations for the transport of dangerous goods (IATA/IMDG) has been published and the implemented updates include a change in classification for **TMAH (Tetramethylammonium hydroxide) and its solutions.**

The recognized toxicity of TMAH is going to be introduced for all existing proper shipping names along with the limitation to aqueous solutions. Additionally, a new proper shipping name (UN 3560) for aqueous solutions with >25% TMAH and classification criteria for other (non-aqueous) TMAH solutions are going to be introduced.

We have a question about the non-aqueous solution. It is mentioned in the text

- Other formulation containing **a surfactant** > 1% and \geq 8.75% TMAH à UN2927, toxic liquid, corrosive, PG I
- Other formulation containing **a surfactant** > 1% and > 2.38% - < 8.75% TMAH à UN2927, toxic liquid, corrosive, PG II

We would like to get a **letter of interpretation** on the definition of the term “surfactant” in UN2927 classification?

(Is it only substances that have hydrophobic-hydrophilic capability OR all substances that can potentially accelerate dermal uptake? Any other way the term should be defined?...)

Thank you in advance for your help

Regards

Jeanne Enaux
Head of Product Compliance US

Email: Jeanne.enuaux@emdgroup.com
Post mail: 116 Fairfield Road, 08540 Princeton NJ, USA
Tel: +18483130986



The Electronics business of Merck KGaA, Darmstadt, Germany operates as EMD Electronics in the U.S. and Canada.

This message and any attachment are confidential and may be privileged or otherwise protected from disclosure. If you are not the intended recipient, you must not copy this message or attachment or disclose the contents to any other person. If you have received this transmission in error, please notify the sender immediately and delete the message and any attachment from your system. Merck KGaA, Darmstadt, Germany and any of its subsidiaries do not accept liability for any omissions or errors in this message which may arise as a result of E-Mail-transmission or for damages resulting from any unauthorized changes of the content of this message and any attachment thereto. Merck KGaA, Darmstadt, Germany and any of its subsidiaries do not guarantee that this message is free of viruses and does not accept liability for any damages caused by any virus transmitted therewith.

Click emdgroup.com/disclaimer to access the German, French, Spanish, Portuguese, Turkish, Polish and Slovak versions of this disclaimer.

Please find our Privacy Statement information by clicking here: [emdgroup.com/privacy-statement \(U.S.\)](http://emdgroup.com/privacy-statement (U.S.)) or [emdserono.com/privacy-statement \(Canada\)](http://emdserono.com/privacy-statement (Canada))