

January 5, 2018

## Freezing of Glacial Acetic Acid

### Physicochemical Properties:

- 1. Purity:** Each of VWR's products listed as Glacial Acetic Acid has an assay, or purity, 99.5 % min. or better.
- 2. Freezing / Melting:** The Freezing (Melting) Point (i.e., the temperature at which a pure substance has its solid and liquid phases in equilibrium at atmospheric pressure (1 atm) <sup>1</sup> of Glacial Acetic Acid is 16.7 deg C (63 deg F) <sup>2,3</sup>. As such, exposure of any of the above Acetic Acid products to temperatures less than 16.7 deg C (63 deg F) results in *freezing*, or solidification, of the initially pure liquid product. Freezing of Glacial Acetic Acid is quite common during winter months, in climates having temperatures falling below these values.
- 3. Performance:** Freezing of Glacial Acetic Acid is totally reversible within the reasonable working / storage temperature range of +40 to -20 deg C (+104 to -4 deg F), on the condition that none of the initial liquid phase, the solidified product phase product was contaminated, especially by vapors of other organic chemicals. This is the case for an initially sealed bottle or container of Glacial Acetic Acid in its initially, pure liquid form. This means that all product specifications, physicochemical properties, and performance characteristics of Glacial Acetic Acid products are totally maintained if it is initially liquid, then frozen (solidified), then melted (liquefied), within the temperature range of +40 to -20 deg C (+104 to -4 deg F).
- 4. Recommendations for Melting (Glacial Acetic Acid):** The following procedures and recommendations should be followed:



**Important Note:** Be aware of, read about, and use, all appropriate safety and handling procedures, guidelines, and equipment indicated in the product SDS, of Glacial Acetic Acid. Refer to additional standard chemical safety, handling, and applications references about Glacial Acetic Acid, if necessary.

**Method 1.** Allow the frozen acetic acid, in its bottle or container, to thaw at room temperature (typically 20 - 25 deg C). This may require anywhere from a few hours, to a few days, depending upon the extent to which the initial liquid phase has frozen.

**Method 2.** Subject the frozen acetic controlled heated water bath), to no higher than +40 deg C (+104 deg F). For safety purposes, in order to prevent a hazardous build up of acetic acid vapor pressure. Prior to heating, slightly loosen the cap of the Acetic Acid bottle or container. Perform the controlled heating procedure in a ventilated hood or ventilated laboratory area, away from chemicals incompatible with Acetic Acid, according to the product Safety Data Sheet (i.e., SDS). Perform this procedure until a single, liquid phase of Acetic Acid, is observed in the bottle or container.

**VWR International, LLC.**

Radnor Corporate Center, Building One, Suite 200, P.O. Box 6660, 100 Matsonford Road, Radnor, PA 19087  
**610.431.1700 | vwr.com**



Following return of the frozen Acetic Acid product to a single, liquid phase, recommendation is to maintain the bottle or container at temperatures above 16.7 deg C (63 deg F), for short- or long- term storage.

For more information, please refer to the product page on [vwr.com](http://vwr.com) or contact:

VWR Technical Product Support  
TechnicalProductSupportNA@vwr.com  
Tel: 888.897.5463

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<sup>1</sup> The edition, Van Nostrand Reinhold Co., NY, 1993, p.737.

<sup>2</sup> The Merck Index, 12th edition, Merck & Co., Inc., 1996, entry # 52, p. 10-11.

<sup>3</sup> The completely revised edition, Volume A 1, VCH, Germany, 1985, p. 45.

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