



Designation: F1105 – 09 (Reapproved 2020)

# Standard Practice for Preparing Aircraft Cleaning Compounds, Liquid-Type, Temperature-Sensitive, or Solvent-Based, for Storage Stability Testing<sup>1</sup>

This standard is issued under the fixed designation F1105; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This practice covers the determination of the stability in storage of liquid enzyme-based, terpene-based, and solvent-based chemical cleaning compounds used to clean the exterior surfaces of aircraft.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

- 2.1 *U.S. Government Document:*  
**Federal Specification PPP-P-704 Pails, Metal Shipping, Steel 1 through 12 Gallons<sup>2</sup>**

## 3. Summary of Practice

3.1 Storage stability is determined by evaluation of the effect of time, temperature, and environmental conditions on the cleaning compound. Samples used for testing are filled containers taken from the manufacturer's controlled production formulation, packaged, and delivered to the purchaser for normal use.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee F07 on Aerospace and Aircraft and is the direct responsibility of Subcommittee F07.07 on Qualification Testing of Aircraft Cleaning Materials.

Current edition approved Nov. 1, 2020. Published December 2020. Originally approved in 1987. Last previous edition approved in 2014 as F1105 – 09(2014). DOI: 10.1520/F1105-09R20.

<sup>2</sup> Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094 Attn: NPODS.

3.2 The sample container shall be subjected to the specified storage environment for a period of 12 months. The test shall be completed prior to 24 months from date of packaging.

## 4. Significance and Use

4.1 This practice determines the procedure to be used to ensure the long-term storage stability of aircraft cleaning and maintenance products in order to ensure their ability to meet the shelf-life requirements called up in specifications or contract documents. The subsequent testing requirements are detailed in the specification or contract.

## 5. Sampling

5.1 The sample for storage stability testing shall be taken from a controlled production formula, packaged lot, or batch delivered in a sealed, filled container to the purchaser for use. This sample is normally a 1-gal can conforming to Federal Specification PPP-P-704. This material shall have previously been tested and passed all other specification requirements for qualification or acceptance. The sample container selected for the test shall be kept sealed and unopened for the duration of the test. The sample container shall be durably and legibly marked with the following minimum information:

### Storage Stability Test Sample

Supplier  
Formula number  
Date of packaging  
Cold test period  
Hot test period  
Batch/Lot No.  
Test began  
Test ends

## 6. Procedure

6.1 *Storage Environment*—Place the sample container in a storage area where a temperature of 10 to 27 °C (50 to 80 °F) is maintained at least 80 % of the total storage test time. Do not subject the storage test sample to temperature over 32 °C (90 °F) or under –12 °C (10 °F) during the entire test. Maintain the sample container in a static condition not subject to

vibration, rolling, inversion, or other movement. Movement to the necessary temperature-controlled area for cold- and hot-temperature testing is accepted, but accomplish such transfer with minimum (or no) disturbance of container contents.

6.1.1 *Cold-Temperature Storage Environment*—Subject the sample container to a 15-day time interval at  $-8 \pm 2$  °C ( $17 \pm 3$  °F). Conduct this cold test interval during the period 90 to 120 days after start of the storage stability test time.

6.1.2 *Hot-Temperature Storage Environment*—Subject the sample container to a 15-day time interval at  $32 \pm 2$  °C ( $90 \pm 5$  °F). Conduct this hot test interval after 270 days of elapsed test time but 60 days before the termination of the storage test.

6.1.3 *Completion of Test*—After 12 months storage test time, carefully remove the sample container (if necessary),

without agitation, rolling, or inversion, from the storage area and place in a room, in a stable location for  $48 \pm 1$  h at a temperature of 22 to 27 °C (71 to 80 °F). At the end of 48 h, remove the top of the container and examine the internal surface for corrosion or sediment. Disregard discoloration of the interior surface of the container. Take samples of the product and test in accordance with the relevant specification or contract requirements.

## 7. Keywords

7.1 cold test period; hot test period; solvent-based cleaning compounds; storage stability

*ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.*

*This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.*

*This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org). Permission rights to photocopy the standard may also be secured from the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, Tel: (978) 646-2600; http://www.copyright.com/*

(<https://standards.iteh.ai>)  
Document Preview

[ASTM F1105-09\(2020\)](https://standards.iteh.ai/catalog/standards/sist/be449c9e-fe6d-4248-8516-6d3e6974847a/astm-f1105-092020)

<https://standards.iteh.ai/catalog/standards/sist/be449c9e-fe6d-4248-8516-6d3e6974847a/astm-f1105-092020>