



Standard Test Method for LOT-TO-LOT STABILIZATION UNIFORMITY OF PROPYLENE PLASTICS¹

This Standard is issued under the fixed designation D 2342; 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.

1. Scope

1.1 This method covers two procedures for determining the stability of propylene plastics when exposed to air in the molten state for a relatively brief period of time:

1.1.1 *Procedure A*—without the presence of copper.

1.1.2 *Procedure B*—with the presence of copper.

NOTE 1—The values stated in SI units are to be regarded as the standard.

2. Summary of Method

2.1 Plastic pellets are exposed in aluminum or copper dishes in a circulating-air oven at 185 C for definite time periods. Thermal oxidative stability under these conditions is determined visually by comparing the cooled disk of heated plastic with a standard or by measuring any change in its flow rate by ASTM Method D 1238, Measuring Flow Rates of Thermoplastics by Extrusion Plastometer.²

3. Significance

3.1 These procedures are intended primarily as a means for rapid quality control. They serve to indicate the uniformity of the thermal oxidative stability of a material as produced from lot-to-lot in a particular composition by a single manufacturer.

3.2 The test can detect differences among materials having different levels and types of stabilizers. Procedure A is applicable to all propylene plastics. The use of Procedure B is generally limited to materials that are specifi-

cally designed for applications in which there is direct contact of the plastic with copper or its alloys.

3.3 Due to the complexities of polymer oxidative degradation and its retardation and their dependence on such factors as temperature and time, the data obtained by these procedures for materials of various polymer and stabilization types may not correlate with behavior under actual use conditions. Therefore, these procedures are not recommended for rating or qualifying such materials in the absence of other long-term aging information.

4. Apparatus

4.1 *Oven*—Air-circulating oven capable of maintaining a uniform temperature and an air flow of 75 to 140 m/min (approximately 250 to 450 fpm) measured at the inlet side. A convenient method of checking uniformity of oven exposure conditions consists of filling the oven shelf to be used with the aluminum dishes described in 4.2, after charging each with 15 g of a general-purpose (moderately stabilized) polypropylene. Heat for 16 h at 185 ± 2 C. Remove the dishes, cool, and examine. The polypropylene in each of the dishes should be similar in color. Variation in polypropylene color between dishes indicates nonuniformity of oven temperature or air flow, or both; if variation occurs, the oven is

¹ This method is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee D-20.12 on Olefin Plastics.

Current edition effective Jan. 10, 1968. Originally issued 1965. Replaces D 2342 – 65 T.

² *Annual Book of ASTM Standards*, Part 35.