



STANDARD SPECIFICATIONS  
FOR  
SILVER SOLDERS<sup>1</sup>

A.S.T.M. Designation: B 73 - 29

These specifications are issued under the fixed designation B 73; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

ISSUED AS TENTATIVE, 1928; ADOPTED IN AMENDED FORM, 1929.

1. (a) These specifications cover eight grades of silver-copper-zinc alloys in wire, strip, sheet or granular form, used for brazing purposes and commercially known as silver solders. Scope.

(b) The eight grades of silver solders covered by these specifications shall be designated as Grades Nos. 1 to 8 in accordance with their chemical composition as specified in Section 6.

(c) The choice of the grade of solder for any specified purpose depends on the material in connection with which it is to be used. Recommendations regarding applications and data regarding colors and melting ranges are given in the Appendix to these specifications.

MANUFACTURE

2. The alloys shall be made from virgin metals or such clean scrap as may result from the manufacture of articles of the same or similar composition. Process.

3. Strip or sheet solder shall be cold rolled to size and, unless otherwise specified, shall be furnished in the hard condition.

4. Wire shall be cold drawn to size, and unless otherwise specified, shall be annealed after cold drawing and pickled bright.

5. Granular solder shall be produced by filing, grinding or other process of granulation. The material shall be supplied in sizes specified in accordance with the requirements for the size of sieve opening of the Standard Specifications for Sieves for Testing Purposes (A.S.T.M. Designation: E 11) of the American Society for Testing Materials.<sup>2</sup> The material shall contain not more than 10 per cent over the specified size.

<sup>1</sup> Under the standardization procedure of the Society, these specifications are under the jurisdiction of the A.S.T.M. Committee B-2 on Non-Ferrous Metals and Alloys.

<sup>2</sup> 1933 Book of A.S.T.M. Standards, Part II, p. 1244.

## CHEMICAL PROPERTIES AND TESTS

Chemical  
Composition.

6. The alloys shall conform to the following requirements as to chemical composition, within the permissible variations specified in Section 7:

GRADE No.	SILVER, PER CENT	COPPER, PER CENT	ZINC, PER CENT	CADMIUM, PER CENT	IMPURITIES, MAX., PER CENT,
1.....	10	52	38	a	0.15
2.....	20	45	35	a	0.15
3.....	20	45	30	5	0.15
4.....	45	30	25	nil	0.15
5.....	50	34	16	nil	0.15
6.....	65	20	15	nil	0.15
7.....	70	20	10	nil	0.15
8.....	80	16	4	nil	0.15

\* The addition not to exceed 0.50 per cent of cadmium to assist in fabricating Grades Nos. 1 and 2 shall not be considered as a harmful impurity.

Permissible  
Variations.

7. The permissible variation from the percentages, specified in Section 6, of silver, copper and zinc, for all grades shall be plus or minus 1 per cent in the case of silver and copper and 2 per cent in the case of zinc. The permissible variation in the percentage of cadmium for Grade No. 3 shall be plus or minus 1 per cent.

Sample for  
Chemical  
Analysis.

8. A composite sample of not less than 1 oz. shall be taken from each lot of 50 lb. or fraction thereof of Grades Nos. 1, 2 and 3, and from each lot of 20 lb. or fraction thereof of Grades Nos. 4, 5, 6, 7 and 8. Samples of granulated solder shall consist of the grains as prepared. Samples from wire, sheet or strip shall be taken by shearing or clipping pieces from the entire cross-section of the same, remelting in a clean container at a temperature slightly above the melting range, mixing thoroughly, and pouring into a cold mold of convenient size for milling, drilling or sawing. The sample so prepared shall be milled, drilled or sawed in such a manner as to represent the entire cross-section. The saw, drill, cutter or other tool used shall be thoroughly cleaned. No lubricant shall be used in the operation, and the sawings or metal chips shall be carefully treated with a magnet to remove any particles of steel introduced in taking the sample.

9. In the case of disagreement, the solder shall be re-sampled in the presence of the manufacturer and purchaser. The sample shall consist of not less than 3 oz. of solder prepared as described in Section 8. The thoroughly mixed sample shall be divided into three equal parts, each of which shall be placed in a sealed package, one for the manufacturer, one for the purchaser, and one for an umpire, if necessary.