

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 1098

High-Carbon Steel (Modified)

(Gasometric Standard)

This Standard Reference Material (SRM) is in the form of a rod 6.4 mm (1/4 in) in diameter and 102 mm (4 in) long. SRM 1098 is intended for use in the determination of gases in metals by vacuum or inert gas fusion and neutron activation methods of analyses.

<u>Element^a</u>	<u>Midrange Value^b</u> (ppm by wt.)
Oxygen	10
Nitrogen	32

^aHydrogen is not included (<5 ppm)

^bAverage of midrange values from two cooperating laboratories.

Laboratory	Range of Results ¹	Midrange Value
	Oxygen	
NRL	9.2 to 12.0	10.6
Battelle	6.8 to 11.3	9.0
	Nitrogen	
NRL	31.1 to 36.7	33.9
Battelle	27.5 to 33.5	30.5

¹Average of duplicate vacuum fusion determinations made on samples cut from 12 individual rods.

The technical and support aspects involved in the preparation, certification, and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by R.E. Michaelis.

Gaithersburg, MD 20899
April 21, 1986
(Revision of Certificate
dated 10-3-73)

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

(over)

PLANNING, PREPARATION, TESTING, AND ANALYSIS:

The material for this standard was vacuum melted and cast at the Carpenter Technology Corporation, Reading, Pennsylvania, under a contract with the National Bureau of Standards. The contract was made possible by a grant from the American Iron and Steel Institute.

The ingots were processed by Carpenter Technology Corporation to provide material of the highest possible homogeneity. Following acceptance of the composition based on NBS analyses, selected portions of the ingot material were extensively tested for homogeneity at NBS by D.M. Bouchette, S.D. Rasberry, and J.L. Weber, Jr. Only that material meeting a critical evaluation was processed to the final shapes and sizes.

Cooperative analysis for oxygen and nitrogen were performed in the Columbus Laboratories, Battelle Memorial Institute, Columbus, Ohio by R.E. Heffelfinger; and in the Analytical Chemistry Branch, Naval Research Laboratory, Washington, D.C., by W.A. Fraser.

CAUTION: Oxygen determinations should be made on thoroughly and freshly cleaned samples.

PREPARATION FOR THE DETERMINATION OF OXYGEN:

1. Samples should be cut from the original rod to minimize heating of the sample; e.g., by a hand hacksaw.
2. All surfaces of the cut samples should be thoroughly cleaned with a fine file.
3. Samples should be washed with C.P. ether, acetone, or other suitable solvent, dried in a stream of warm clean air and then handled only with clean forceps.
4. Analyses should be made as soon as possible after cleaning the sample.