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|  | R Documentation |

**Variability in Semiconductor Manufacturing**

**Description**

The Oxide data frame has 72 rows and 5 columns.

**Format**

This data frame contains the following columns:

Source

a factor with levels 1 and 2

Lot

a factor giving a unique identifier for each lot.

Wafer

a factor giving a unique identifier for each wafer within a lot.

Site

a factor with levels 1, 2, and 3

Thickness

a numeric vector giving the thickness of the oxide layer.

**Details**

These data are described in Littell et al. (1996, p. 155) as coming “from a passive data collection study in the semiconductor industry where the objective is to estimate the variance components to determine the assignable causes of the observed variability.” The observed response is the thickness of the oxide layer on silicon wafers, measured at three different sites of each of three wafers selected from each of eight lots sampled from the population of lots.

**Source**

Pinheiro, J. C. and Bates, D. M. (2000), *Mixed-Effects Models in S and S-PLUS*, Springer, New York. (Appendix A.20)

Littell, R. C., Milliken, G. A., Stroup, W. W. and Wolfinger, R. D. (1996), *SAS System for Mixed Models*, SAS Institute, Cary, NC.