

DISSOLVED SOLIDS
Dissolved solids is a term describing the amount of salts or mineral constituents in solution in water. It is usually expressed as the weight of salts in a known volume of water, such as milligrams per liter (mg/l). Dissolved solids does not include suspended mineral sediment or other solid material usually found to some degree in all water. The dissolved-solids data are from discharge of wells that range in depth from a few hundred feet to more than 3,000 feet below land surface. Solid color shows areas in which sufficient data are available for reasonable assurance of the indicated dissolved-solids concentration in ground water. Areas known to yield water of different quality at depths greater than 500 to 2,000 feet below land surface are indicated by appropriately colored vertical lines. Uncolored areas are mainly consolidated sedimentary rocks or crystalline igneous and metamorphic rocks that store relatively small amounts of water per unit area and generally yield only enough water for stock, an individual domestic, or a ranch. The dissolved-solids content of the water yielded by wells in the uncolored area is shown by appropriately-colored solid circles. Most of the comments below refer to use of water in the area covered by this map.

Less than 500 mg/l
Water in this concentration range is usually obtained from deposits free of gypsum (calcium sulfate) or other soluble salts and is the most desirable water for most uses. The U.S. Public Health Service (1962) recommends that water containing more than 500 mg/l of dissolved solids not be used for public supplies or by interstate carriers and others subject to Federal quarantine regulations.

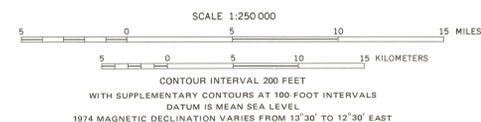
500 to 1,000 mg/l
Water in this concentration range is obtained from deposits that may contain small amounts of gypsum (calcium sulfate) or other soluble salts and is used for domestic supply, especially where water of lesser concentration is not available. The main objection is bad taste due to dissolved gypsum and common table salt (sodium chloride). Much ground water used successfully for irrigation is in this concentration range.

1,000 to 3,000 mg/l
Water in this concentration range is obtained from deposits that contain gypsum (calcium sulfate) or other soluble salts and is used successfully for irrigation of salt-tolerant crops grown on well-drained soil.

More than 3,000 mg/l
Water in this concentration range is obtained from deposits that contain much gypsum (calcium sulfate), halite, or other soluble material. Successful use for irrigation requires salt-tolerant crops, well-drained soil, and addition of amendments to prevent accumulation of harmful salts in the soil. An upper limit of about 5,000 mg/l for livestock use has been recommended by some investigators.

The ground water contained in the alluvial deposits filling the intermontane basins is the source for irrigation, industrial, and public supply. The use of the water is limited both by the total content and by the type of salt and mineral solids dissolved in the water. The amount of dissolved solids in the ground water is mainly related to the presence and availability of soluble minerals in the deposits in the basin and to the composition of the soil and rocks in the recharge area. Generally in this locality water containing more than 1,000 mg/l of dissolved solids is not preferred for public supply without treatment, but water containing as much as 3,000 mg/l may be used for irrigation. The effect of dissolved-solids content on industrial use depends on the type of use, but in general most water in the area can be treated and made suitable for some kinds of industrial use.

REFERENCES
Laney, R. L., 1972, Chemical quality of the water in the Tucson basin, Arizona. U.S. Geol. Survey Water-Supply Paper 1939-D, 46 p.
U.S. Public Health Service, 1962, Drinking water standards: U.S. Public Health Service Pub. 956, 61 p.



**DISSOLVED-SOLIDS CONTENT OF GROUND WATER
IN THE TUCSON AREA, ARIZONA**
By
L. R. Kister
1974

Base from U.S. Geological Survey
Ajo 1953-69, Tucson and
Nogales 1956-62

Chemical quality by L. R. Kister (1973)
and modified from R. L. Laney (1972)

Interior-Geological Survey, Reston, Va.-1974

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