BS ISO 22932-9:2025

BSI Standards Publication

Mining — Vocabulary

Part 9: Drainage

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Part 9: Drainage

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Foreword

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This document was prepared by Technical Committee ISO/TC 82, *Mining*.

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Introduction

The ISO 22932 series has been prepared in order to standardize and to co-ordinate the global use of technical terms and definitions in mining, for the benefit of the experts working on different types of mining activities.

The need for the ISO 22932 series arose from the widely varying interpretation of terms used within the industry and the prevalent use of more than one synonym.

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Mining — Vocabulary —

Part 9: Drainage

1 Scope

This document specifies the commonly used terms in mine drainage.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1 Ground water

3.1.1
aquifer
porous water bearing stratum

3.1.2
aquifer test
in situ procedure, such as single-well (bail test or slug test) and multiple-well *pumping* (3.3.5.9) tests, used to determine hydraulic properties of an aquifer

Note 1 to entry: See Reference [1].

3.1.3
aquifuge
rock that contains no interconnected openings or interstices and therefore neither absorbs nor transmits water

Note 1 to entry: That can be as the opposite of aquifer.

Note 2 to entry: Compare with confining bed.

Note 3 to entry: See Reference [1].

3.1.4
attached ground water
that portion of the subsurface water adhering to the pore walls

Note 1 to entry: It is assumed to be equal in quantity to the pellicular water, and it is measured by specific retention.

Note 2 to entry: See Reference [1].

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3.1.5
capillary
action by which the surface of a liquid is elevated at the point at which it is in contact with a solid

Note 1 to entry: Such as in a lamp wick.

Note 2 to entry: See Reference [1].

3.1.5.1
capillarity
capillary action
action by which a fluid, such as water, is drawn up (or depressed) in small interstices or tubes as a result of surface tension

Note 1 to entry: See Reference [1].

3.1.5.2
zone of capillarity
subsurface zone that overlies the *zone of saturation* (3.1.20) in which *capillary* (3.1.5) voids hold water above the *zone of saturation* (3.1.20) by molecular attraction acting against gravity

Note 1 to entry: Compare with zone of aeration.

Note 2 to entry: See Reference [1].

3.1.6
confining bed
aquiclude
impervious stratum above and/or below an aquifer

Note 1 to entry: Compare with aquifuge.

3.1.7
connate water
inherent water contemporary with the rocks containing it, as opposed to water subsequently permeating the rocks

Note 1 to entry: Compare with interstitial water and formation water.

3.1.8
depressed water level
pumping water level
lowest level of *ground water* (3.1.10) during *drainage* (3.2.3.2) or pumping

3.1.9
formation water
native water
water present in a water-bearing formation under natural conditions, as opposed to introduced fluids, such as drilling mud

Note 1 to entry: Compare with connate water.

Note 2 to entry: See Reference [1].

3.1.10
ground water
meteoric water
subterranean water
water penetrating from the surface and filling naturally the pores and fissures of the strata below the water table

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3.1.11
ground water hydrology
aspect of *hydrology* (3.1.13) which is concerned with the physical and chemical characteristics of water and similar liquids found in the ground

3.1.12
ground water province
area or region in which geology and climate combine to produce ground-water conditions consistent enough to permit useful generalizations

Note 1 to entry: See Reference [1].

3.1.13
hydrology
study of the movement of water above, on and within the earth's crust

3.1.14
interstitial water
pore water
subsurface water in the voids of a rock

Note 1 to entry: Compare with connate water.

Note 2 to entry: See Reference [1].

3.1.15
piestic level
level at which water in a confined *aquifer* (3.1.1) will rise under its full hydrostatic head

3.1.16
piezometric surface
potentiometric surface
imaginary surface that coincides with the hydrostatic pressure level of the water in a confined *aquifer* (3.1.1)

3.1.16.1
cone of depression
space enclosed between the water table, at which water would stand naturally in the ground, and the position at which it in fact stands owing to *drainage* (3.2.3.2) or pumping at some point in the vicinity

Note 1 to entry: In the case of confined water under pressure, the cone of depression is the space between the undisturbed piezometric surface and the piezometric surface after pumping.

3.1.16.2
piezometer
instrument for measuring pressure head

Note 1 to entry: Usually consisting of a small pipe tapped into the side of a closed or open conduit and flush with the inside; connected with a pressure gage, mercury, water column, or other device for indicating head.

Note 2 to entry: See Reference [1].

3.1.17
secondary water
water entering the mine from other workings, as opposed to water inherent in the area worked by the mine

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3.1.18
water table
free water elevation
free water surface
ground water level
ground water surface
ground water table
level of saturation
phreatic surface
plane of saturation
saturated surface
plane or surface below which fissures and pores in the strata are naturally saturated with water

3.1.18.1
perched water table
water table (3.1.18) of a body of perched ground water

Note 1 to entry: See Reference [1].

3.1.18.1.1
perched ground water
perched water
unconfined *ground water* (3.1.10) separated from an underlying main body of *ground water* (3.1.10) by an unsaturated zone

Note 1 to entry: See Reference [1].

3.1.18.2
water table contour
line drawn on a map to represent an imaginary line in the *water table* (3.1.18) of a definite level.

Note 1 to entry: These contours are constructed from the data provided by the water-table levels, corrected for differences in surface level at the respective boreholes. A site investigation or opencast plan sometimes show water-table contours.

Note 2 to entry: See Reference [1].

3.1.18.3
water table level
level showing the depth of the *water table* (3.1.18) below the surface

Note 1 to entry: Also is the depth at which water is encountered in trial pits or boreholes.

Note 2 to entry: See Reference [1].

3.1.18.4
water table map
contour map of the upper surface of the saturated zone

Note 1 to entry: See Reference [1].

3.1.18.5
water table stream
concentrated *ground water* (3.1.10) flow at the *water table* (3.1.18) in a formation or structure of high permeability

Note 1 to entry: See Reference [1].

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3.1.19
zone of aeration
subsurface zone containing water under pressure less than that of the atmosphere, including water held by capillarity, and containing air or gases generally under atmospheric pressure

Note 1 to entry: This zone is limited above by the land surface and below by the water table. It contains vadose water.

Note 2 to entry: Compare with zone of capillarity.

Note 3 to entry: See Reference [1].

3.1.19.1
vadose water
suspended water
water of the zone of aeration

Note 1 to entry: See Reference [1].

3.1.20
zone of saturation
phreatic zone
saturated zone
subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere

Note 1 to entry: This zone is separated from the zone of aeration by the water table.

Note 2 to entry: See Reference [1].

3.2 Drainage planning

3.2.1 Pumps planning

3.2.1.1
booster pump
pump that operates in the discharge line of another pump, either to increase pressure or to restore pressure lost by friction in the line or by lift

Note 1 to entry: See Reference [1].

3.2.1.2
booster station
in long-distance *pumping* (3.3.5.9) of liquids or mineral slurries, an intermediate pump station

Note 1 to entry: See Reference [1].

3.2.1.3
hogger pump
topmost pump in a shaft

Note 1 to entry: See Reference [1].

3.2.1.4
pump chamber
underground *pumping* (3.3.5.9) station

Note 1 to entry: See Reference [1].

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3.2.1.5
pitwright
plugman
person who operates one or a battery of pumps to force excess water from a lower level to the surface or to a *drainage* (3.2.3.2) tunnel

Note 1 to entry: See Reference [1].

3.2.1.6
pumping head
<airlift> distance from the surface to the level of the water during *pumping* (3.3.5.9)

Note 1 to entry: It equals static head plus drop.

Note 1 to entry: See Reference [1].

3.2.1.7
pumping shaft
shaft containing the *pumping* (3.3.5.9) machinery of a mine

Note 1 to entry: See Reference [1].

3.2.1.8
pump lift
vertical distance that a pump can suck up water or the vertical distance a pump can force water to flow

Note 1 to entry: Theoretically, the vertical distance that a pump can suck up water should be about 10,4 m at sea level but practically, the limit is about 7,9 m.

Note 2 to entry: See Reference [1].

3.2.1.9
pump load
back pressure and/or resistance to flow of fluids that a pump must overcome to force a fluid to flow through a pipeline, drill string, etc.

Note 1 to entry: See Reference [1].

3.2.1.10
pump pressure
force per unit area or pressure against which a pump acts to force a fluid to flow through a pipeline, drill string, etc.

Note 1 to entry: Also, it's the pressure imposed on the fluid ejected from a pump.

Note 2 to entry: See Reference [1].

3.2.1.11
pump slip
leakage past the valves and the plunger in a *reciprocating pump* (3.3.3.7), which should not be greater than 2 % or 3 % for a pump in good condition

Note 1 to entry: See Reference [1].

3.2.1.12
pump slope
slope in which pumps are operated

Note 1 to entry: See Reference [1].

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