



FINAL DRAFT

International Standard

ISO/FDIS 22932-8

Mining — Vocabulary — Part 8: Extraction

*Exploitation minière — Vocabulaire —
Partie 8: Extraction*

ISO/TC 82

Secretariat: **DIN**

Voting begins on:
2025-04-18

Voting terminates on:
2025-06-13

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

ISO/FDIS 22932-8

<https://standards.iteh.ai/catalog/standards/iso/632c2968-7b79-46d5-badd-5cbbaf8a3b5a/iso-fdis-22932-8>

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

ISO/FDIS 22932-8

<https://standards.iteh.ai/catalog/standards/iso/632c2968-7b79-46d5-badd-5cbbaf8a3b5a/iso-fdis-22932-8>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
3.1 General concepts related to surface mining and underground mining	1
3.2 Surface mining	3
3.3 Underground mining	38
Bibliography	72
Index	73

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO/FDIS 22932-8](https://standards.iteh.ai/catalog/standards/iso/632c2968-7b79-46d5-badd-5cbbaf8a3b5a/iso-fdis-22932-8)

<https://standards.iteh.ai/catalog/standards/iso/632c2968-7b79-46d5-badd-5cbbaf8a3b5a/iso-fdis-22932-8>

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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

A list of all parts in the ISO 22932 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

ISO/FDIS 22932-8

<https://standards.iteh.ai/catalog/standards/iso/632c2968-7b79-46d5-badd-5cbbaf8a3b5a/iso-fdis-22932-8>

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.

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO/FDIS 22932-8](https://standards.iteh.ai/catalog/standards/iso/632c2968-7b79-46d5-badd-5cbbaf8a3b5a/iso-fdis-22932-8)

<https://standards.iteh.ai/catalog/standards/iso/632c2968-7b79-46d5-badd-5cbbaf8a3b5a/iso-fdis-22932-8>

Mining — Vocabulary —

Part 8: Extraction

1 Scope

This document specifies the commonly used terms in mine extraction.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 22932-4, *Mining — Vocabulary — Part 4: Prospecting and exploration*

ISO 22932-5, *Mining — Vocabulary — Part 5: Prospecting and exploration*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22932-4 and ISO 22932-5 and the following 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 General concepts related to surface mining and underground mining

3.1.1

location

physical space, where extraction is carried out

3.1.1.1

working

area of operation (3.1.2) in a mine or quarry (3.2.2.4.82)

Note 1 to entry: Working can be located elsewhere in the mine domain such as shaft, quarry, level, open cut, stope and others.

3.1.1.1.1

worked out area

working (3.1.1.1) from which workable mineral had been extracted

3.1.1.2

free face

surface of rock that is free to move when a force is applied to it

3.1.1.3

confined area

closed or partially closed space within mine facility that presents specific characteristics

Note 1 to entry: A confined area that can represent negative effect on the safety and health of workers, including limited access, insufficient ventilation and the presence of toxic, explosive or asphyxiating gases.

Note 2 to entry: These confined areas can be found in mining operations, as well as maintenance and/or repair activities.

3.1.1.4

incline

roadway driven on a gradient

3.1.2

operation

activities of extraction

3.1.2.1

to break in

to advance part of the *working* ([3.1.1.1](#)) face on a narrow front

3.1.2.2

mucking out

to load out broken material in roadways, shafts and other *locations* ([3.1.1](#))

3.1.2.3

dead signs

safety instruction and signaling about the authorization of people to get inside a *working* ([3.1.1.1](#)) area

3.1.2.4

degradation

inadvertent breakage of mineral in mining, handling, transportation or storage

3.1.2.4.1

grade control

blending of mineral to give a product a predetermined quality

3.1.2.5

recover

to restore to a *working* ([3.1.1.1](#)) condition a mine or a part of a mine that has been damaged by explosion, fire, water, or other cause

3.1.3

outcome

result of extraction

3.1.3.1

debris

scattered fragments

3.1.3.1.1

ore

debris ([3.1.3.1](#)) of economic value

3.1.3.1.2

dirt

gangue

redd

refuse

rubbish

spoil

sterile

debris ([3.1.3.1](#)) associated with the mineral and extracted during extraction

Note 1 to entry: Dirt can be composed of hard rock, clay or other non-value mineral bearing materials.

3.1.3.1.3

waste

debris ([3.1.3.1](#)) without economic value in the current phase of extraction

3.1.3.2

grade

expected quality of mineral

3.1.3.3

run of mine

product of extraction before processing

3.1.3.4

tip

accumulation of deposit or refuse at the surface of the mine or *quarry* ([3.2.2.4.82](#))

3.1.3.5

interburden

material of any nature that lies between two or more bedded *ore* ([3.1.3.1.1](#)) zones

Note 1 to entry: See Reference [\[1\]](#).

3.2 Surface mining

ISO/FDIS 22932-8

<https://standards.iteh.ai/catalog/standards/iso/632c2968-7b79-46d5-badd-5cbbaf8a3b5a/iso-fdis-22932-8>

General terms

3.2.1.1

bank mining

surface mining ([3.2.1.10](#)) in which the material mined is removed from above the surrounding land surface

Note 1 to entry: See Reference [\[1\]](#).

3.2.1.2

cable excavator

excavator having a wire-rope-operated upper structure designed primarily for excavation with a dragline bucket, front shovel or grab

3.2.1.3

haulback mining

method of *surface mining* ([3.2.1.10](#)) in which the overburden is hauled from over the *ore* ([3.1.3.1.1](#)) or coal in trucks to a holding area and hauled back after the *ore* ([3.1.3.1.1](#)) or coal has been removed

Note 1 to entry: See Reference [\[1\]](#).

3.2.1.4

muck

unconsolidated soil, sand, clay, or loam encountered in *surface mining* (3.2.1.10); generally, earth which can be moved without blasting bulk material that is being transported or processed, which can be either *ore* (3.1.3.1.1) or *waste* (3.1.3.1.3)

Note 1 to entry: See Reference [1].

3.2.1.5

pass

complete excavation cycle in removing overburden

3.2.1.6

scraper

self-propelled or towed crawler or wheeled machine which has a bowl with a cutting edge positioned between the axles, and which cuts, loads, transports, discharges and spreads material through its forward motion

Note 1 to entry: The loading through a forward motion can be assisted by a powered mechanism (elevator) fixed to the scraper bowl.

3.2.1.7

spoil bank

term common in *surface mining* (3.2.1.10) to designate the accumulation of overburden

Note 1 to entry: See Reference [1].

3.2.1.8

stripping

removal of earth or non-ore rock materials as required to gain access to the desired orebody or mineral materials; the process of removing overburden or *waste* (3.1.3.1.3) material in a *surface mining* (3.2.1.10) operation (3.1.2)

Note 1 to entry: See Reference [1].

3.2.1.9

subaqueous mining

surface mining (3.2.1.10) in which the material mined is removed from the *bed* (3.2.2.4.6) of a natural body of water

Note 1 to entry: See Reference [1].

3.2.1.10

surface mining

mining at or near the surface, which is generally done where the overburden can be removed without too much expense

Note 1 to entry: See Reference [1].

3.2.2

Mechanical excavation

3.2.2.1

auger mining

3.2.2.1.1

auger

machine which excavates a mineral by the drilling of large diameter holes in the seam, and discharges the mineral by way of a scroll

3.2.2.1.2

auger mining

auger head

means a method of mining coal at a cliff or highwall by drilling holes into an exposed coal seam from the highwall and transporting the coal along an auger bit to the surface

Note 1 to entry: Augering is usually associated with contour strip-mining, recovering coal for a limited depth beyond the point where stripping becomes uneconomical because the seam of coal lies so far beneath the surface.

3.2.2.1.3

breast auger

auger supported by a breastplate against a operators body that used for drilling holes in softer minerals

3.2.2.1.4

breastplate

slightly curved iron plate fastened to the end of a *coal auger* ([3.2.2.1.5](#)) to enable a miner to press the auger forward using body pressure

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.1.5

coal auger

special type of continuous miner and consists essentially of a large diameter screw drill that cuts, transports, and loads coal onto vehicles or conveyors, and is used for (1) winning *opencast* ([3.2.2.3.16](#)) coal without *stripping* ([3.2.1.8](#)) overburden; (2) pillar-and-stall mining; and (3) extraction of *pillars* ([3.3.2.3.10](#)) or percentage of *pillars* ([3.3.2.3.10](#)) that would otherwise be uneconomic to work

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.1.6

continuous-flight auger

drill rod with continuous helical fluting, which acts as a screw conveyor to remove cuttings produced by an auger drill head

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.1.7

doughnut

cylinder of coal formed by a *coal auger* ([3.2.2.1.5](#))

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.1.8

large-diameter boring machine

auger-type coal-cutting machine, for use in anthracite mining that can drill holes 31 cm in diameter, 91 m long, and larger holes for shorter distances

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.1.9

lengthening rod

screwed extension rod for prolonging a well-boring auger or bit

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.1.10

mud auger

diamond- *point* ([3.2.2.4.78](#)) bit with the wings of the *point* ([3.2.2.4.78](#)) twisted in a shallow, augerlike spiral

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.1.11 mole mining

method of *working* ([3.1.1.1](#)) coal seams about 76,2 cm thick, using a small continuous miner type of machine, which is remotely controlled from the roadway and without any associated supports

Note 1 to entry: The machine is used to cut and extract sections of coal about 1,8 m wide for a distance of 91 m or so from pillars alongside the roadway. Small ribs of coal, approximately 1 to 2 m wide, are left between the sections extracted by the machine. The accurate steering of the machine is a critical feature of this system of mining.

Note 2 to entry: See Reference [\[1\]](#).

3.2.2.2 Glory holing

3.2.2.2.1 glory hole

vertical *pit* ([3.2.2.3.21](#)), material from which is fed by gravity to hauling units in a shaft under the *pit* ([3.2.2.3.21](#)) bottom

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.2.2 glory-hole system milling system

method of mining using a system of haulageways beneath the block of ore, which has had its top surface exposed by the removal of the overburden

Note 1 to entry: Over the haulageways are chutes that extend up to the surface, and are spaced at intervals of 15,2 m or at any other convenient distance.

Note 2 to entry: The excavation of the ore begins at the top of the chute, and broken ore is removed by loading it out from the chutes into cars on the haulage level. The ore block is worked from the top down. The method is similar in principle to underhand stoping.

Note 3 to entry: See Reference [\[1\]](#).

3.2.2.2.3 chute system

method of mining by which *ore* ([3.1.3.1.1](#)) is broken from the surface downward into chutes and removed through passageways below

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.3 Open pit mining

3.2.2.3.1 advance overburden

overburden in excess of the average overburden-to-ore ratio that must be removed in *open-cut* ([3.2.2.3.18](#)) mining

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.3.2 bench face

generally steeply sloping mass of any earthy or rock material rising above the digging *level* ([3.3.1.60](#)) from which the soil or rock is to be extracted from its natural or blasted position in an open-*pit* ([3.2.2.3.21](#)) mine or *quarry* ([3.2.2.4.82](#))

Note 1 to entry: Also is terracelike bench from which ore is obtained in an open-pit mine.

Note 2 to entry: See Reference [\[1\]](#).

3.2.2.3.3

bank slope

bench slope

angle, measured in degrees of deviation from the horizontal, at which the earthy or rock material will stand in an excavated, terracelike cut in an open-pit ([3.2.2.3.21](#)) mine or quarry ([3.2.2.4.82](#))

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.3.4

bare

uncased portion of borehole

Note 1 to entry: Also called barefoot; blank; naked; open; open hole.

Note 2 to entry: See Reference [\[1\]](#).

3.2.2.3.5

bench

ledge that, in open-pit ([3.2.2.3.21](#)) mine and quarries, forms a single level ([3.3.1.60](#)) of operation ([3.1.2](#)) above which minerals or waste ([3.1.3.1.3](#)) materials are excavated from a contiguous bank or bench face ([3.2.2.3.2](#))

Note 1 to entry: The mineral or waste is removed in successive layers, each of which is a bench, several of which may be in operation simultaneously in different parts of, and at different elevations in, an open-pit mine or quarry.

Note 2 to entry: Compare with berm.

Note 3 to entry: See Reference [\[1\]](#).

3.2.2.3.6

berm

horizontal shelf or ledge built into the embankment or sloping wall of an open pit ([3.2.2.3.21](#)) or quarry ([3.2.2.4.82](#)) to break the continuity of an otherwise long slope and to strengthen its stability or to catch and arrest slide material

Note 1 to entry: A berm may be used as a haulage road or serve as a bench above which material is excavated from a bank or bench face.

Note 2 to entry: Compare with bench.

Note 3 to entry: See Reference [\[1\]](#).

3.2.2.3.7

berm interval

vertical distance from crest of berm ([3.2.2.3.6](#)) to its underlying toe ([3.2.2.3.40](#)), as in a bank or bench ([3.2.2.3.5](#))

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.3.8

box-cut method

method of opencast ([3.2.2.3.16](#)) mining of coal - where the dip of the seam is relatively steep - which in a boxlike excavation is made to the dip, or at an angle to it, and the coal seam is worked to the right and left

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.3.9

cross-pit conveyors

conveyor structure crossing the benches ([3.2.2.3.5](#)) of open pit ([3.2.2.3.21](#)) mines to reduce the haul ([3.2.2.4.48](#)) distance across the pit ([3.2.2.3.21](#)) in terrace mining operations ([3.1.2](#))

Note 1 to entry: See Reference [\[1\]](#).

3.2.2.3.10

drop cut

initial cut made in the floor of an open *pit* (3.2.2.3.21) or *quarry* (3.2.2.4.82) for the purpose of developing a *bench* (3.2.2.3.5) at a *level* (3.3.1.60) below the floor

Note 1 to entry: See Reference [1].

3.2.2.3.11

floating cone

method of designing optimum extraction sequences for an open *pit* (3.2.2.3.21) mine which in "Cones" of material are built using an *ore* (3.1.3.1.1) block as a base and economic net value of the cone is calculated and the process is repeated for each *ore* (3.1.3.1.1) block in a deposit, considering cone overlaps

Note 1 to entry: The term "floating" is derived from the "movement" of the cone throughout the model.

Note 2 to entry: See Reference [1].

3.2.2.3.12

gopherman

in metal mining, one who extracts *ore* (3.1.3.1.1) located in pockets or other parts not accessible for machine drilling in an open *pit* (3.2.2.3.21) mine

Note 1 to entry: See Reference [1].

3.2.2.3.13

horizontal borer

machine, making holes from 5,08 cm to 15,24 cm in diameter, used for drilling overburden at *opencut* (3.2.2.3.18) coal mines

Note 1 to entry: Bits are of the auger or winged types.

Note 2 to entry: See Reference [1].

3.2.2.3.14

length of shot

distance from the first drill hole to the last drill hole along the bank

Note 1 to entry: See Reference [1].

3.2.2.3.15

Lerchs-Grossmann optimization

mathematical method based on a block model of an orebody used for determining the most profitable optimum shape for an open *pit* (3.2.2.3.21)

Note 1 to entry: See Reference [1].

3.2.2.3.16

opencast

opencast mine

working (3.1.1.1) in which the mineral is exposed by removing the overburden

Note 1 to entry: Commonly called open pit.

3.2.2.3.17

opencast method

mining method consisting of removing the overlying strata or overburden, extracting the coal, and then replacing the overburden

Note 1 to entry: When the overlying material consists of earth or clay it can be removed directly by scrapers or excavators, but where rock is encountered it is necessary to resort to blasting to prepare the material into suitable form for handling by the excavators.

Note 2 to entry: See Reference [1].