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Date: 28 October 2024

Origin: International

Latest date for receipt of comments: 21 December 2024

Project No. 2022/02278

Responsible committee: MRE/1 Mining mechanical equipment and machinery

Interested committees:

Title: Draft BS ISO 22932-8 Mining - Vocabulary. Part 8: Extraction.

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/DIS 22932-8

Mining — Vocabulary — Part 8: Extraction

ICS: 73.020; 01.040.73

ISO/TC 82

Secretariat: **DIN**

Voting begins on:
2024-10-28

Voting terminates on:
2025-01-20

This document is circulated as received from the committee secretariat.

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Reference number
ISO/DIS 22932-8:2024(en)

Full document details: 24/30463830 DC

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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

3.2.1 General Terms.....3

3.2.2 Mechanical excavation.....4

3.2.3 Aqueous.....31

3.3 Underground mining.....38

3.3.1 General terms.....38

3.3.2 Coal mining.....54

3.3.3 Caving methods.....71

3.3.4 Cut and fill stoping.....73

3.3.5 Long-hole Open stoping.....74

Bibliography.....80

Index.....81

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.

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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.

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.

Mining — Vocabulary —

Part 8: Extraction

WARNING — Cross references and table of contents will be completed after final editing.

1 Scope

This document specifies the commonly used terms in mine extraction.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

ISO and IEC maintain terminological 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 in a mine or quarry

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 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

[SOURCE: BS 3618-8:1974]

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

[SOURCE: BS 3618-8:1974]

3.1.2

operation

activities of extraction

3.1.2.1

to break in

to advance part of the working face on a narrow front

3.1.2.2

mucking out

to load out broken material in roadways, shafts and other locations

3.1.2.3

dead signs

safety instruction and signaling about the authorization of people to get inside a working area

3.1.2.4

degradation

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

[SOURCE: BS 3618-8:1974]

3.1.2.4.1

grade control

blending of mineral to give a product a predetermined quality

[SOURCE: BS 3618-8:1974]

3.1.2.5

recover

to restore to a working condition a mine or a part of a mine that has been damaged by explosion, fire, water, or other cause

[SOURCE: BS 3618-8:1974]

3.1.3

outcome

result of extraction

3.1.3.1

debris

scattered fragments

3.1.3.1.1

ore

debris (ref) of economic value

3.1.3.1.2

dirt

gangue

muck

redd

refuse

rubbish

spoil

sterile

debris (ref) 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 (ref) 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

3.1.3.5

interburden

material of any nature that lies between two or more bedded ore zones

Note 1 to entry: See Reference [2].

3.2 Surface mining

3.2.1 General Terms

3.2.1.1

bank mining

surface mining in which the material mined is removed from above the surrounding land surface

Note 1 to entry: See Reference [2].

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 in which the overburden is hauled from over the ore or coal in trucks to a holding area and hauled back after the ore or coal has been removed

Note 1 to entry: See Reference [2].

3.2.1.4

muck

unconsolidated soil, sand, clay, or loam encountered in surface mining; generally, earth which can be moved without blasting

Note 1 to entry: See Reference [2].

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.

[SOURCE: ISO 6165:2012]

3.2.1.7

spoil bank

term common in surface mining to designate the accumulation of overburden

Note 1 to entry: See Reference [2].

3.2.1.8

stripping

removal of earth or nonore rock materials as required to gain access to the desired coal, ore, or mineral materials; the process of removing overburden or waste material in a surface mining operation

Note 1 to entry: See Reference [2].

3.2.1.9

subaqueous mining

surface mining in which the material mined is removed from the bed of a natural body of water

Note 1 to entry: See Reference [2].

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 [2].

3.2.2 Mechanical excavation

3.2.2.1 Auger Mining

For the purposes of this document, the terms and definitions given in ISO 22932-4 and ISO 22932-5 and the following apply:

3.2.2.1.1

auger

<coal> machine which wins coal by the drilling of large diameter holes in the seam, and discharges the coal by way of a scroll

[SOURCE: BS 3618-8:1974]

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 miner's body that used for drilling holes in soft coal

Note 1 to entry: See Reference [2].

3.2.2.1.4

breastplate

slightly curved iron plate fastened to the end of a coal auger to enable a miner to press the auger forward using body pressure

Note 1 to entry: See Reference [2].

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 coal without stripping overburden; (2) pillar-and-stall mining; and (3) extraction of pillars or percentage of pillars that would otherwise be uneconomic to work

Note 1 to entry: See Reference [2].

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 [2].

3.2.2.1.7

doughnut

cylinder of coal formed by a coal auger

Note 1 to entry: See Reference [2].

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 [2].

3.2.2.1.9

lengthening rod

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

Note 1 to entry: See Reference [2].

3.2.2.1.10

mud auger

diamond-point bit with the wings of the point twisted in a shallow, augerlike spiral

Note 1 to entry: See Reference [2].

3.2.2.1.11

mole mining

method of working 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 [2].

3.2.2.2 Glory holing

3.2.2.2.1

glory hole

vertical pit, material from which is fed by gravity to hauling units in a shaft under the pit bottom

Note 1 to entry: See Reference [2].

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 [2].

3.2.2.2.3

chute system

method of mining by which ore is broken from the surface downward into chutes and removed through passageways below

Note 1 to entry: See Reference [2].

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 opencut mining

Note 1 to entry: See Reference [2].

3.2.2.3.2

bench face

generally steeply sloping mass of any earthy or rock material rising above the digging level from which the soil or rock is to be extracted from its natural or blasted position in an open-pit mine or quarry

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

Note 2 to entry: See Reference [2].

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 mine or quarry

Note 1 to entry: See Reference [2].

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 [2].

3.2.2.3.5

bench ledge that, in open-pit mine and quarries, forms a single level of operation above which minerals or waste materials are excavated from a contiguous bank or bench face

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 [2].

3.2.2.3.6

berm horizontal shelf or ledge built into the embankment or sloping wall of an open pit or quarry 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 [2].

3.2.2.3.7

berm interval vertical distance from crest of berm to its underlying toe, as in a bank or bench

Note 1 to entry: See Reference [2].

3.2.2.3.8

box-cut method method of opencast 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 [2].

3.2.2.3.9

cross-pit conveyors conveyor structure crossing the benches of open pit mines to reduce the haul distance across the pit in terrace mining operations

Note 1 to entry: See Reference [2].

3.2.2.3.10

drop cut

initial cut made in the floor of an open pit or quarry for the purpose of developing a bench at a level below the floor

Note 1 to entry: See Reference [2].

3.2.2.3.11

floating cone

method of designing optimum extraction sequences for an open pit mine which in "Cones" of material are built using an ore block as a base and economic net value of the cone is calculated and the process is repeated for each ore 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 [2].

3.2.2.3.12

gopherman

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

Note 1 to entry: See Reference [2].

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 coal mines

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

Note 2 to entry: See Reference [2].

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 [2].

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

Note 1 to entry: See Reference [2].

3.2.2.3.16

opencast

opencast mine

working in which the mineral is exposed by removing the overburden

Note 1 to entry: Commonly called open pit.

[SOURCE: BS 3618-8:1974]

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 [2].

3.2.2.3.18

**opencut
open hole**

surface working in which the working area is kept open to the sky

Note 1 to entry: Commonly called open pit.

Note 2 to entry: See Reference [2].

3.2.2.3.19

opencut mine

excavation for removing minerals which is open to the weather

Note 1 to entry: See Reference [2].

3.2.2.3.20

open pit mining

form of operation designed to extract minerals that lie near the surface which in waste, or overburden, is first removed, and the mineral is broken and loaded, as in a stone quarry

Note 1 to entry: Important chiefly in the mining of ores of iron and copper.

Note 2 to entry: The mining of metalliferous ores by surface-mining methods is commonly designated as open pit mining as distinguished from the strip mining of coal and the quarrying of other nonmetallic materials such as limestone, building stone, etc.

Note 3 to entry: See Reference [2].

3.2.2.3.21

pit

mine, quarry, or excavation worked by the open-cut method to obtain material of value

Note 1 to entry: See Reference [2].

3.2.2.3.22

pit limit

either the vertical or lateral extent to which the mining of a mineral deposit by open pitting is economically feasible

Note 1 to entry: The cost of removing overburden or waste material versus the minable value of the ore so exposed is usually the factor controlling the limits of a pit.

Note 2 to entry: See Reference [2].

3.2.2.3.23

pit mining

surface mining in which the material mined is removed from below the surrounding land surface

Note 1 to entry: See Reference [2].

3.2.2.3.24

pit slope

angle at which the wall of an open pit or cut stands as measured along an imaginary plane extended along the crests of the berms or from the slope crest to its toe

Note 1 to entry: See Reference [2].

3.2.2.3.25

rock navvy

cranelike loading machine used at opencast pits and quarries

Note 1 to entry: See Reference [2].

3.2.2.3.26

rooter

towed scarifier; sometimes used to break up a hard surface and prior to the use of bulldozers in removing overburden at quarries and opencast pits

Note 1 to entry: See Reference [2].

3.2.2.3.27

scarifier

machine with downward projecting teeth for breaking hard soil at quarries and opencast pits

Note 1 to entry: It may be self-propelled or attached to another vehicle.

Note 2 to entry: See Reference [2].

3.2.2.3.28

single-row blasting

drilling, charging, and firing of a single row of vertical holes along a quarry or opencast face

Note 1 to entry: The holes may be fired simultaneously or by delay detonators to give a peeling action starting at one end of the face.

Note 2 to entry: See Reference [2].

3.2.2.3.29

skimming

removal of the top layer of soil or of irregularities in the ground surface at new mine or opencast sites

Note 1 to entry: See Reference [2].

3.2.2.3.30

slope stability

resistance of any inclined surface, as the wall of an open pit or cut, to failure by sliding or collapsing

Note 1 to entry: See Reference [2].

3.2.2.3.31

spiral system

haul road arranged spirally along the perimeter walls of the pit so that gradient of road is more or less uniform from the bottom to the top of the pit

Note 1 to entry: See Reference [2].

3.2.2.3.32

spiral track

track layout for rail or road transport from large opencast pits

Note 1 to entry: The track is arranged spirally along the steep rise from the coal or ore benches so that the gradient is moderate throughout.

Note 2 to entry: See Reference [2].

3.2.2.3.33

steam shovel

excavating machine in which a large dipper is operated by steam power

Note 1 to entry: This machine is used for stripping purposes and in open-pit mining, esp. for iron and coal. A similar shovel is now operated by electricity, gasoline, and diesel engines.

Note 2 to entry: See Reference [2].

3.2.2.3.34

steam shovel mine

opencut mine in which steam shovels or other power shovels are used for loading cars

Note 1 to entry: See Reference [2].

3.2.2.3.35

strike working

opencast working

where the dip of the coal seam is about 1 in 10 or less, the opencast method of working usually employed is to excavate along lines parallel to the outcrop

Note 1 to entry: This is termed the strike or opencast method.

Note 2 to entry: See Reference [2].

3.2.2.3.36

strip-borer drill

skid- or crawler-mounted drill operated by electric motor or diesel engine

Note 1 to entry: It is used at quarry or opencast sites for drilling horizontal blast holes 7,6 to 15,2 cm in diameter, and up to 30 m in length, without the use of flush water. It cannot penetrate strong strata.

Note 2 to entry: See Reference [2].

3.2.2.3.37

surface reinstatement

restoration of the surface after opencast mining operations have been completed

Note 1 to entry: The work may involve leveling the hill-and-dale formation, drainage, and relaying of the original topsoil, also known as resoiling.

Note 2 to entry: See Reference [2].

3.2.2.3.38

switchback

zigzag arrangement of a roadway (or rail tracks) for surmounting the grade of a steep hill or the slope wall of a surface or open-pit mine, common in mountainous mining districts

Note 1 to entry: See Reference [2].

3.2.2.3.39

terrace

bench in quarry or opencast mining

Note 1 to entry: See Reference [2].

3.2.2.3.40

toe

base of the coal, ore, or overburden face in a quarry or opencast mine

Note 1 to entry: See Reference [2].

3.2.2.3.41

transport controller

person stationed in a central position, at a large opencast pit or quarry, to observe all the excavations

Note 1 to entry: By means of signals, the individual is informed when and where vehicles or cars are required and can instruct the lorry or locomotive drivers accordingly.

Note 2 to entry: See Reference [2].

3.2.2.3.42

toehold

blasting hole, usually drilled horizontally or at a slight inclination into the base of a bank, bench, or slope of a quarry or open pit mine

Note 1 to entry: See Reference [2].

3.2.2.3.43

track-moving machine operator

track-laying machine operator

hydraulic jack operator

in metal mining, one who operates a machine that moves and lays track mechanically in open pit mines, picking up a section of track and moving and laying it in the desired position without having to detach rails from ties

Note 1 to entry: See Reference [2].

3.2.2.3.44

wheel excavator

large-capacity machine for excavating loose deposits, particularly at opencast coalpits

Note 1 to entry: It consists of a large digging wheel that rotates on a horizontal axle and carries large buckets on its rim.

Note 2 to entry: See Reference [2].

3.2.2.3.45

working gullet

immediate excavation needed for opencast working of ore

Note 1 to entry: See Reference [2].

3.2.2.4 Quarrying

3.2.2.4.1

backs

quarryman's term for one set of joints traversing the rock, the other set being known as cutters

Note 1 to entry: See Reference [2].

3.2.2.4.2

balance car

car loaded with iron or stone and connected by means of a steel cable with a channeling machine operating on an inclined track

Note 1 to entry: Its purpose is to counteract the force of gravity and thus enable the channeling machine to operate with equal ease uphill and downhill.

Note 2 to entry: See Reference [2].

3.2.2.4.3

barer

worker who removes surface soil or overburdens in a quarry

Note 1 to entry: See Reference [2].

3.2.2.4.4

barge loader

in the quarry industry, a laborer who controls the movement of a barge in a river as it is loaded with crushed rock

Note 1 to entry: See Reference [2].

3.2.2.4.5

base fracture

used to describe the condition of the base after a blast

Note 1 to entry: It may be a good or bad base fracture.

Note 2 to entry: See Reference [2].

3.2.2.4.6

bed

portion of an outcrop or face of a quarry that occurs between two bedding planes

Note 1 to entry: See Reference [2].

3.2.2.4.7

bedding

quarry term for a structure occurring in granite and other crystalline rocks that tend to split in well-defined planes more or less horizontal or parallel to the land surface

Note 1 to entry: See Reference [2].

3.2.2.4.8

bird's-eye slate

quarryman's term for slate containing abundant deformed or squeezed concretions

Note 1 to entry: See Reference [2].

3.2.2.4.9

block structure

used in quarrying to describe granite that has three sets of joints occurring at right angles to each other

Note 1 to entry: See Reference [2].

3.2.2.4.10

bottom break

break or crack that separates a block of stone from a quarry floor

Note 1 to entry: See Reference [2].

3.2.2.4.11

boulder motion

surface quarry worked only in detached masses of rock overlying the solid rock; sometimes contracted to motion

Note 1 to entry: See Reference [2].

3.2.2.4.12

boulder quarry

quarry in which the joints are numerous and irregular, so that the stone has been broken naturally into comparatively small blocks

Note 1 to entry: See Reference [2].

3.2.2.4.13

box loader

one who loads broken rock into a large box, placed on a small truck running on a narrow gauge track, to be hoisted out of the quarry pit

Note 1 to entry: See Reference [2].

3.2.2.4.14

bulled hole

quarry blasting hole, the bottom of which has been enlarged or chambered to receive a heavy explosive charge

Note 1 to entry: See Reference [2].

3.2.2.4.15

butt

butt of a slate quarry is where the overlying rock comes in contact with an inclined stratum of slate rock

Note 1 to entry: See Reference [2].

3.2.2.4.16

camouflet

quarry blasting hole enlarged by chambering

Note 1 to entry: See Reference [2].

3.2.2.4.17

canch

part of a bed of stone worked by quarrying

Note 1 to entry: See Reference [2].

3.2.2.4.18

casting over

quarryman's term for an operation consisting of making a cut with a steam shovel, which, instead of loading the material on cars, moves it to one side, forming a long ridge

Note 1 to entry: See Reference [2].

3.2.2.4.19

cavil

type of heavy sledge with one blunt and one pointed end

Note 1 to entry: Used for rough shaping stone at a quarry.

Note 2 to entry: See Reference [2].

3.2.2.4.20

channeler

powerful quarrying machine capable of cutting slots in stone at any angle

Note 1 to entry: It is used for cutting dimension stone off the quarry face without explosives.

Note 2 to entry: See Reference [2].

3.2.2.4.21

chats

quarrying term for cherty rock used as an abrasive

Note 1 to entry: See Reference [2].

3.2.2.4.22

chute loader

one who loads crushed rock from bins into trucks or railroad cars by opening and closing the chute or bin gates by hand or by means of a lever

Note 1 to entry: See Reference [2].

3.2.2.4.23

columnar charge

continuous charge in a quarry borehole

Note 1 to entry: See Reference [2].

3.2.2.4.24

commercial quarry

term that includes quarries for aggregate and quarries for the production of limestone for industrial and agricultural purposes

Note 1 to entry: See Reference [2].

3.2.2.4.25

concentrated charge

heavy explosive charge loaded into the enlarged chamber at the bottom of a quarry blasthole

Note 1 to entry: See Reference [2].

3.2.2.4.26

control on fracture

is based on the experimental determination of the type and the grade of explosive, the loading ratio, and the pattern of boreholes

Note 1 to entry: See Reference [2].

3.2.2.4.27

coping

process of cutting one slab into two without regard to the finish of the edges

Note 1 to entry: See Reference [2].

3.2.2.4.28

coyote hole

small tunnel driven horizontally into the rock at right angles to the face of the quarry

Note 1 to entry: It has two or more crosscuts driven from it parallel to the face. It is in the ends of these crosscuts that the explosive charge is generally placed, and the remaining space in the tunnel is filled up with rock, sand, timbers, or concrete, to act as stemming or tamping.

Note 2 to entry: See Reference [2].

3.2.2.4.29

cricks

vertical joints affecting only the lower strata in a quarry

Note 1 to entry: See Reference [2].

3.2.2.4.30

crushed stone

term applied to irregular fragments of rock crushed or ground to smaller sizes after quarrying

Note 1 to entry: See Reference [2].

3.2.2.4.31

crusher rock

term used in quarrying to describe the weathered overlying rock that occurs at most quarry operations and which is sold for use as road base

Note 1 to entry: See Reference [2].

3.2.2.4.32

cutoff

quarry term for the direction along which granite must be channeled, because it will not split

Note 1 to entry: See Reference [2].

3.2.2.4.33

doubleheader

applied to quarry equipment consisting of two independent channeling machines on a single truck, operated by one person

Note 1 to entry: See Reference [2].

3.2.2.4.34

drop ball

method of breaking oversize stones left after quarry blasting which in the balls weigh from 30 1,360 kg to 1,800 kg t are dropped from a crane on to the oversize stone

Note 1 to entry: The drop height varies from about 6,1 m to 10,1 m. The method is economical and avoids secondary blasting.

Note 2 to entry: See Reference [2].

3.2.2.4.35

drop weights

method of breaking oversize stones after primary blasting at a quarry

Note 1 to entry: See Reference [2].

3.2.2.4.36

face height

vertical height of a quarry or opencast face from top to toe; i.e., the height of overburden and coal, ore, or stone

Note 1 to entry: A face height is chosen that can be reached by the excavator so that all scaling of loose material can be accomplished by the machine, thus eliminating the necessity for workers to go over the face on ropes to bar off loose ground.

Note 2 to entry: Where the height exceeds this figure, a form of benching may be adopted.

Note 3 to entry: See Reference [2].

3.2.2.4.37

falling-pin seismometer

limit recorder of the intensity of ground vibrations initiated by a quarry or opencast blast

Note 1 to entry: See Reference [2].

3.2.2.4.38

false cleavage

quarrying term for minor cleavage in a rock, such as slip cleavage, to distinguish it from the dominant cleavage

Note 1 to entry: See Reference [2].

3.2.2.4.39

floor break

break or crack that separates a block of stone from the quarry floor

Note 1 to entry: See also floor cut.

Note 2 to entry: See Reference [2].

3.2.2.4.40

floor cut

cut by means of which a block of stone is separated from the quarry floor

Note 1 to entry: See also floor break.

Note 2 to entry: See Reference [2].

3.2.2.4.41

full-face blast

standard type of heading blast consists of a straight in or main drive, at right angles to the rock face, and a back drive at right angles to the main drive and parallel to the face

Note 1 to entry: The main drive is normally driven at quarry floor level to a depth of 0,6 times the height of rock above the back drive.

Note 2 to entry: See Reference [2].

3.2.2.4.42

gadder

gadding machine

small car or platform carrying a drilling machine, so as to make a straight line of holes along its course in excavation out dimension stone

Note 1 to entry: See Reference [2].

3.2.2.4.43

gopher hole

horizontal opening in wall of quarry, perhaps chambered or tee-headed in preparation for blasting

Note 1 to entry: See Reference [2].

3.2.2.4.44

gopher hole blasting

terms applied to the method of blasting in which large charges are fired in small adits driven into the face of the quarry at the level of the floor

Note 1 to entry: See Reference [2].

3.2.2.4.45

gritting

process that gives a smoother surface than rubbing

Note 1 to entry: See Reference [2].

Note 2 to entry: It is accomplished with silicon carbide or aluminum oxide abrasive bricks attached to revolving buffer heads.

3.2.2.4.46

grout

applied to waste material of all sizes obtained in quarrying stone

Note 1 to entry: See Reference [2].

3.2.2.4.47

grow-on

quarrymen's term to designate the place where the sheet structure dies out, or the place where two sheets appear to grow onto one another

Note 1 to entry: See Reference [2].

3.2.2.4.48

guttering

process of quarrying stone in which channels, several inches wide, are cut by hand tools, and the stone block detached from the bed by pinch bars

Note 1 to entry: See Reference [2].

3.2.2.4.49

hard way

term used in slate quarrying to describe the third direction at right angles to both slaty cleavage and rift, in which there is no tendency to split

Note 1 to entry: It is known as the hard way and designated locally as the sculp.

Note 2 to entry: See Reference [2].

3.2.2.4.50

haul

distance from the coal face to pit bottom or surface; the distance quarry or opencast products must be moved to the treatment plant or construction site; the distance from the shaft or opencast pit to spoil dump

Note 1 to entry: See Reference [2].

3.2.2.4.51

heading blast

method of quarry blasting in which the explosive is confined in small tunnel chambers inside the quarry face

Note 1 to entry: The charges are placed at suitable intervals according to the burden to be blasted. In large blasts, several tunnels and cross tunnels may be employed.

Note 2 to entry: See Reference [2].

3.2.2.4.52

heugh

steep face of a quarry or other excavation

Note 1 to entry: See Reference [2].

3.2.2.4.53

hillside quarry

quarry cut into and along the hillside; may comprise a single face or a series of benches

Note 1 to entry: If the depth of face is not more than about 9 m it can be worked in one cut, but deeper faces are usually worked in two or more benches.

Note 2 to entry: See Reference [2].

3.2.2.4.54

hole layout

arrangement consisting of a combination of vertical and horizontal holes

Note 1 to entry: See Reference [2].

3.2.2.4.54.1

initial face

face formed by the blasting of the slope

Note 1 to entry: See Reference [2].

3.2.2.4.55

jointing

process of cutting to specified sizes and shapes, with smooth unchipped edges

Note 1 to entry: See Reference [2].

3.2.2.4.56

key blocks

first blocks that are removed in opening up a new quarry floor

Note 1 to entry: See Reference [2].

3.2.2.4.57

knobbing

act of roughdressing stone in the quarry by knocking off the projections and points

Note 1 to entry: See Reference [2].

3.2.2.4.58

knots

quarrymen's term for dark gray to black masses, more or less oval or circular in cross section, which are segregations of biotite or hornblende in granite

Note 1 to entry: See Reference [2].

3.2.2.4.59

lander

top hooker

in the quarry industry, one who supervises and assists in guiding, steadying, and loading, on trucks or railroad cars, blocks of stone hoisted from the quarry floor

Note 1 to entry: See Reference [2].

3.2.2.4.60

ledge

<deposit>quarry exposure or natural outcrop of a mineral deposit

Note 1 to entry: See Reference [2].

3.2.2.4.61

ledge

<beds> bed or several beds in a quarry or natural outcrop, particularly those projecting in a steplike manner

Note 1 to entry: See Reference [2].

3.2.2.4.62

lift

plane approx. parallel with the floor of the quarry, along which the stone is usually split in quarrying

Note 1 to entry: See Reference [2].

3.2.2.4.63

lift joint

horizontal tension fracture observed in massive rocks, such as granite; thought to originate from the removal of load in quarrying

Note 1 to entry: See Reference [2].

3.2.2.4.64

lime pit

limestone quarry

Note 1 to entry: See Reference [2].

3.2.2.4.65

line drilling

method of drilling and broaching for the primary cut which in deep holes are drilled close together in a straight line by means of a reciprocating drill mounted on a bar

Note 1 to entry: The webs between the holes are removed with a drill or a flat broaching tool; thus a narrow continuous channel cut is made.

Note 2 to entry: See Reference [2].

3.2.2.4.66

loading ratio

powder factor

number of tons of rock blasted per 0,454 kg of explosive

Note 1 to entry: The harder the rock, the lower the ratio.

Note 2 to entry: See Reference [2].

3.2.2.4.67

maintaining levels

consists of the removal by blasting of rock protruding above the level of the quarry floor or bench, to allow the movement of loading and transport equipment

Note 1 to entry: See Reference [2].

3.2.2.4.68

mill

usually applied to the finishing plant where blocks are sawed into slabs; all other manufacturing processes are classed as shop work

Note 1 to entry: See Reference [2].

3.2.2.4.69

monoclinic block

quarryman's term for blocks with two parallel sets of sides at right angles and one parallel set not at right angles

Note 1 to entry: See Reference [2].

3.2.2.4.70

multiple-bench quarrying

method of quarrying a rock ledge in a series of successive benches or steps

Note 1 to entry: See Reference [2].

3.2.2.4.71

multiple-row blasting

drilling, charging, and firing of several rows of vertical holes along a quarry or opencast face

Note 1 to entry: The holes may be spaced in the square pattern with delay detonators in the rows as well as row by row. The spacing of the holes will vary according to their depth, diameter, and the type of rock.

Note 2 to entry: See Reference [2].

3.2.2.4.72

oblique block

quarry term applied to a block of stone bounded by 3 pairs of parallel faces--4 of the 12 interfacial angles being right angles, 4 obtuse, and 4 acute

Note 1 to entry: See Reference [2].

3.2.2.4.73

open pit quarry

quarry in which the opening is the full size of the excavation

Note 1 to entry: One open to daylight.

Note 2 to entry: See Reference [2].

3.2.2.4.74

open working

surface working, e.g., a quarry or opencast mine

Note 1 to entry: See Reference [2].

3.2.2.4.75

overloader

loading machine of the power-shovel type for quarry and opencast operations

Note 1 to entry: See Reference [2].

3.2.2.4.76

oversize

in quarry or opencast blasting, that size of rock or ore which is too large to handle without secondary blasting

Note 1 to entry: See Reference [2].

3.2.2.4.77

pioneer bench

first bench in a quarry which is blasted out. It is usually at the top of the rock to be quarried

Note 1 to entry: See Reference [2].

3.2.2.4.78

pitch off

quarry worker's term for trimming an edge of a block of stone with a hammer and set

Note 1 to entry: See Reference [2].

3.2.2.4.79

plug

steel wedge used in quarrying dimension stone

Note 1 to entry: See Reference [2].

3.2.2.4.80

plug-and-feather method

method used in quarrying to reduce large masses of stone to smaller size

Note 1 to entry: See Reference [2].

3.2.2.4.81

point

type of wedge that tapers to a narrow, thin edge

Note 1 to entry: See Reference [2].

3.2.2.4.82

popping

drilling, charging, and firing of a hole in the center of a boulder at quarry and open-cast mines

Note 1 to entry: See Reference [2].

3.2.2.4.83

powder monkey

method of secondary blasting

Note 1 to entry: See Reference [2].

3.2.2.4.84

quarrel

materials from a quarry

Note 1 to entry: See Reference [2].