INTERNATIONAL STANDARD

ISO 18875

First edition
2015-12-15

Coalbed methane exploration and development — Terms and definitions

Exploration et développement du méthane de houille — Termes et définitions

Reference number
ISO 18875:2015(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 263, *Coalbed methane (CBM)*.

Coalbed methane exploration and development — Terms and definitions

1 Scope

This International Standard provides terminology on geology and exploration, engineering construction, field development and production in coalbed methane industry. This International Standard does not contain surface gathering.

2 Terms relating to geology and exploration

2.1
coalbed methane
CBM
methane-rich gas naturally occurring in coal seams (and surrounding rock) typically comprising of 80 % to 95 % methane with lower proportions of ethane, propane, nitrogen and carbon dioxide

Note 1 to entry: In common international use, this term refers to methane recovered from un-mined coal seams using surface boreholes.

2.2
adsorption
enrichment of the absorptive gas at the external and accessible internal surfaces of a solid material (coal matrix)

[SOURCE: ISO 15901-2:2006, 3.2]

2.3
desorption
opposite of *adsorption* (2.2), in which adsorbed gases leave the surface of a solid material (coal matrix)

Note 1 to entry: The liberation can be spontaneous but can be accelerated by physical actions.

[SOURCE: ISO 3529-1:1981, 1.13.2]

2.4
gas content
volume of gas per unit mass of coal, usually expressed in cubic meter of gas per ton of coal under standard temperature and pressure (STP) conditions

Note 1 to entry: Unit is m^3/t or cm^3/g. STP conditions are 100 000 Pa and 0 °C (273,15 K).

2.5
CBM content
volume of hydrocarbon gas per unit mass of coal, usually expressed in cubic meter of gas per ton of coal under standard temperature and pressure (STP) conditions

Note 1 to entry: Unit is m^3/t or cm^3/g. STP conditions are 100 000 Pa and 0 °C (273,15 K).

2.6
CBM reservoir
coal seams and surrounding rock with hydrocarbon resources that can potentially be extracted for commercial purposes

2.7
initial reservoir pressure
P_i
initial gas pressure measured in a reservoir, prior to the start of production

[SOURCE: WWW.GLOSSARY.OILFIELD.SLB.COM]

2.8
pressure gradient
pressure change with distance ratio of fluid pressure in the middle of the coal seam and reservoir depth rate of pressure change with respect to depth of coalbed methane reservoir in unit depth, MPa/m, increasing pressure value of coalbed methane reservoir in unit depth, MPa/m

2.9
abandonment pressure
lowest pressure at which commercial production can be maintained under present economic and technical conditions expressed by flowing bottom hole pressure (FBHP)

2.10
adsorption isotherm
relationship between the amount of gas adsorbed and the equilibrium pressure of the gas at constant temperature

Note 1 to entry: Normally described by the Langmuir equation Vads=VL · (p/(PL+p)).

[SOURCE: ISO 15901-2:2006, 3.5]

2.11
Langmuir volume
VL
maximum adsorbed gas content per unit mass of coal at infinite pressure under particular temperature conditions

2.12
Langmuir pressure
P_L
pressure at which half of the Langmuir volume exists within the coal under particular temperature conditions

2.13
adsorption time
time in hour or day taken for 63,2% of the total absorbed gas to desorb from the matrix

2.14
adsorption saturation
ratio of measured gas content to the maximum adsorbed gas content in theory per unit mass of coal under particular CBM reservoir pressure and temperature conditions

2.15
critical desorption pressure
pressure in which the gas begins to desorb from the coal matrix as the CBM reservoir pressure declines

2.16
shrinkage
contraction coefficient
decrease in volume of coal matrix after gas desorption expressed as a percentage of the initial volume

[SOURCE: ISO 14616:1997, 2.2 — modified]

2.17
diffusion coefficient
rate of gas diffusion through a material

Note 1 to entry: Expressed in m^2/s.

Note 2 to entry: Express flow ability of coalbed methane depending on concentration.

[SOURCE: ISO 9346:2007,3.34]

2.18
dual porosity system
rock characterized by primary porosity from original deposition and secondary porosity from some other mechanism [*cleat* (2.20) or *fracture* (2.19)] and in which all flow to the well effectively occurs in one porosity system, and most of the fluid is stored in the other

[SOURCE: WWW.GLOSSARY.OILFIELD.SLB.COM — modified]

2.19
fracture
natural fractures in a formation resulting from external stress, usually being associated with a displacement

2.20
cleat
natural *fractures* (2.19) in a coal seam usually being associated with *coalification* (2.21)

Note 1 to entry: Normally in a form as two groups of parallel fractures orthogonal with each other the group with better fracture continuity is called surface cleat (face cleat), the other group limited by surface cleat is called end cleat (butt cleat).

2.21
coalification
process by which deposited and compacted plant remains are transformed into coal

Note 1 to entry: Includes diagenesis and metamorphism.

[SOURCE: ISO 1213-2:1992, 3.29]

2.22
coal rank
position of a coal in the coalification series from lignite coal (low rank) to anthracite (high rank), indicating maturity in terms of chemical and physical properties

[SOURCE: ISO 7404-1:1994, 2.1.3]

2.23
CBM exploration
initial phase in coalbed methane operations that includes generation of a prospect or play or both, and drilling of an exploration well

[SOURCE: WWW.GLOSSARY.OILFIELD.SLB.COM]

2.24
CBM resources
naturally occurring concentrations or reservoirs of coalbed methane in coal seams and surrounding rock in such forms and amounts that economic extraction is currently or potentially feasible

[SOURCE: WWW.EIA.GOV/TOOLS/GLOSSARY]

2.25
original CBM in place
volume of coalbed methane in a reservoir prior to production

2.26
recovery factor
ratio of recoverable amount of hydrocarbon initially in place

[SOURCE: WWW.GLOSSARY.OILFIELD.SLB.COM]

2.27
reserve
portion of the demonstrated reserve base that is estimated to be recoverable at the time of determination

Note 1 to entry: Derived by applying a recovery factor to that component of the identified resource designated as the demonstrated reserve base.

2.28
CBM resource abundance
amount of hydrocarbons in unit area

2.29
zone evaluation
screening of various zones to decide on one or more favorable zone through comprehensive geological research

2.30
prospecting well
wildcat well
well drilled for the purpose of discovering a new field or reservoir in the new frontier

[SOURCE: http://www.mpgpetroleum.com/glossary.html]

2.31
appraisal well
wells drilled after gas has been discovered, in order to establish the limits of the accumulation in terms of both the area extent and thickness of the reservoir and the volume of hydrocarbons it contains, and in order to obtain fluid samples to investigate the distribution of fluid properties in the reservoir

2.32
dirt band
parting
layer of mineral matter lying parallel to the bedding plane in a seam of coal

[SOURCE: ISO 1213-2:1992]

2.33
ash
residue obtained by incineration of a solid mineral fuel under specified conditions

[SOURCE: ISO 1213-2:1992]

2.34
volatile matter
loss in mass, corrected for moisture, when a solid mineral fuel is heated out of contact with air under specified conditions

[SOURCE: ISO 1213-2:1992]

2.35
proximate analysis
analysis of a solid mineral fuel reported in terms of moisture, *volatile matter* (2.34), *ash* (2.33) and fixed carbon

[SOURCE: ISO 1213-2:1992, 3.134]

2.36
air dried basis
means of expressing an analytical result based on the condition in which a solid mineral fuel is in equilibrium with atmospheric humidity

[SOURCE: ISO 1213-2:1992, 3.5]

2.37
dry ash-free basis
means of expressing an analytical result based on a hypothetical condition in which the solid mineral fuel is considered to be free from both moisture and ash

[SOURCE: ISO 1213-2:1992, 3.48]

2.38
seismic
exploration technique that can find structures and potential reservoir traps by reflecting sound waves from the rock strata

[SOURCE: http://www.gekengineering.com/]

3 Terms relating to engineering and construction

3.1
casing programme
number of casing layers in one well, depth of setting and diameters of each casing pipe, wellbore diameter of relevant well depth and returning cement depth

3.2
directional well
well drilled at an angle from a surface location to reach a target which is not located directly underneath the wellhead

3.3
cluster wells
group of two or more wells drilled from one drilling pad

3.4
horizontal well
directional well (3.2) whose hole deviation angle is near, equal or larger than 90° with bore hole entering target seam and extending to a length

3.5
multi-lateral horizontal well
horizontal well (3.4) with more horizontal well segments or with more branch horizontal well segments drilled in one horizontal well segment

3.6
U-type well
combination of a *horizontal well* (3.4) and a vertical well with far end of the former connecting to the latter

3.7
V-type well
combination of *horizontal well* (3.4) wells with far ends connecting to the same vertical well

3.8
coalbed following drilling
drilling type following coal seams with dip more than 45°