



THE SOCIALIST REPUBLIC OF VIETNAM

QCVN 09: 2008/BTNMT

National Technical Regulation on underground water quality

(This English version is for reference only)

HANOI - 2008

Foreword

QCVN 09:2008/BTNMT was prepared by the Committee of the National Technical Regulation on Water Quality, submitted by the General Department of Environment and the Legal Department and promulgated in accordance with Decision No. 16/2008/QĐ-BTNMT dated December 31st, 2008 by the Minister of Natural Resources and Environment.

National Technical Regulation on underground water quality

1. GENERAL PROVISIONS

1.1. Scope of regulation

1.1.1. This regulation defines limit values of parameters of underground water quality.

1.1.2. This regulation is applied to evaluate and control the quality of underground water, as a basis to guide the different use of water.

1.2. Explanation of terms

Underground water concerned in this Regulation is the water lie in the soil, rocks under the ground.

2. TECHNICAL REGULATIONS

Limit values of parameters of underground water quality are given in Table 1.

Table 1: Limit values of parameters of underground water quality

No.	Parameters	Unit	Limit values
1	pH	-	5,5 - 8.5
2	Hardness (calculated by CaCO ₃)	mg/l	500
3	Total solids	mg/l	1500
4	COD (KMnO ₄)	mg/l	4
5	Ammonium (NH ₄ ⁺) (calculated by N)	mg/l	0.1
6	Chloride (Cl ⁻)	mg/l	250
7	Fluoride (F ⁻)	mg/l	1.0
8	Nitrite (NO ₂ ⁻) (calculated by N)	mg/l	1.0
9	Nitrate (NO ₃ ⁻) (calculated by N)	mg/l	15
10	Sulfate (SO ₄ ²⁻)	mg/l	400
11	Cyanide (CN ⁻)	mg/l	0.01
12	Phenol	mg/l	0.001
13	Arsenic (As)	mg/l	0.05
14	Cadmium (Cd)	mg/l	0.005
15	Lead (Pb)	mg/l	0.01
16	Chromium III (Cr ³⁺)	mg/l	0.05
17	Copper (Cu)	mg/l	1.0
18	Zinc (Zn)	mg/l	3.0

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19	Manganese (Mn)	mg/l	0.5
20	Mercury (Hg)	mg/l	0.001
21	Iron (Fe)	mg/l	5
22	Selenium (Se)	mg/l	0.01
23	Total radioactivity α	Bq/l	0.1
24	Total radioactivity β	Bq/l	1.0
25	E.coli	MPN/100ml	not detect
26	Coliform	MPN/100ml	3

3. DETERMINATION METHOD

3.1. Sampling for observing underground water quality under the guidance of national standards:

- TCVN 5992:1995 (ISO 5667-2: 1991) - Water quality. Sampling. Guidance on sampling techniques.
- TCVN 5993:1995 (ISO 5667-3: 1985) - Water quality. Sampling. Guidance on the preservation and handling of samples.
- TCVN 6000:1995 (ISO 5667-11: 1992)- Water quality. Sampling. Guidance on sampling of ground waters.

3.2. Analytical methods for determining the parameters of underground water quality comply with the guidance of national standards or corresponding analysis standards of international organizations:

- TCVN 6492-1999 (ISO 10523-1994)- Water quality. Determination of pH.
- TCVN 2672-78 - Drinking water. Determination of total hardness.
- TCVN 6178-1996 (ISO 6777-1984) - Water quality. Determination of nitrite. Molecular absorption spectrometric method.
- TCVN 6180-1996 (ISO 7890-3-1988)- Water quality. Determination of nitrate. Spectrometric method using sulfosalicylic acid.
- TCVN 6200-1996 (ISO 9280-1990) - Water quality. Determination of sulfate. Gravimetric method using barium chloride.
- TCVN 6181-1996 (ISO 6703-1-1984) - Water quality. Determination of total cyanide.
- TCVN 5988-1995 (ISO 5664-1984) - Water quality. Determination of ammonium. Distillation and titration method.

- TCVN 6194-1996 (ISO 9297-1989) - Water quality. Determination of chloride. Silver nitrate titration with chromate indicator (Mohr's method).
- TCVN 6195-1996 (ISO 10359-1-1992) - Water quality. Determination of fluoride. Part 1: Electrochemical probe method for potable and lightly polluted water.
- TCVN 6216-1996 (ISO 6439-1990) - Water quality. Determination of phenol index. 4-aminoantipyrine spectrometric methods after distillation.
- TCVN 6622-2000- Water quality. Determination of surfactants. Part 2. Determination of non-ionic surfactants using Dragendorff reagent.
- TCVN 6193-1996 (ISO 8288-1986) - Water quality. Determination of cobalt nickel, copper, zinc, cadmium, and lead. Flame atomic absorption spectrometric methods
- TCVN 6197-1996 (ISO 5961-1994) -Water quality. Determination of cadmium by atomic absorption spectrometry.
- TCVN 6002-1995 (ISO 6333-1986) - Water quality. Determination of manganese. Formaldoxime spectrometric method.
- TCVN 6177-1996 (ISO 6332-1988) - Water quality. Determination of iron. Spectrometric method using 1,10-phenantrolin.
- TCVN 6183-1996 (ISO 9965-1993) - Water quality. Determination of selenium. Atomic absorption spectrometric method (hydride technique).
- TCVN 5991-1995 (ISO 5666-3-1984) - Water quality. Determination of total mercury by flameless atomic absorption spectrometry. Method after digestion with bromine.
- TCVN 6222-1996 (ISO 9174-1990) - Water quality. Determination of total chromium. Atomic absorption spectrometric methods.
- TCVN 6187-1-1996 (ISO 9308-1-1990)- Water quality. Detection and enumeration of coliform organisms thermotolerant coliform organisms and presumptive Escherichia coli. Part 1: Membrane filtration method.

Parameters specified in this regulation without national standard on the guidance of analytical methods shall apply the corresponding analysis standard of international organizations.

4. ORGANIZATION OF IMPLEMENTATION

This Regulation applies for replacing TCVN 5944:1995- Water quality. Underground water quality standard which is within the List of Vietnam Standards on Environment mandatorily applied together

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with Decision No. 35/2002/QĐ-BKHCHNMT dated June 25th, 2002 by the Minister of Science, Technology and Quality.

In that case that normative national standards in this regulation have amendments, supplements or replacements, shall apply the new ones.
