



**THE SOCIALIST REPUBLIC OF VIETNAM**

**QCVN 06: 2009/BTNMT**

**National Technical Regulation on  
hazardous substances in ambient air**

**(This English version is for reference only)**

**HANOI - 2009**



## **Foreword**

QCVN 06:2009/BTNMT was prepared by the Committee of the National Technical Regulation on Air Quality, submitted by the General Department of Environment, Science and Technology Department and the Legal Department and promulgated in accordance with Circular No. 16/2009/TT-BTNMT dated October 7th, 2009 by the Minister of Natural Resources and Environment.



# National Technical Regulation on ambient air quality

## 1. GENERAL PROVISIONS

### 1.1. Scope of regulation

1.1.1. This regulation defines limit values of basic parameters included: Sulphur dioxide (SO<sub>2</sub>), carbon dioxide (CO), nitrogen oxide (NO<sub>x</sub>), ozone (O<sub>3</sub>), suspended dust, dust PM10 (dust ≤ 10µm) and lead (Pb) in the ambient air.

1.1.2. This regulation is applied to evaluate the quality of ambient air and control air pollution.

1.1.3. This regulation is not applicable to quality of ambient air in the production establishments and in the house.

### 1.2. Explanation of terms

In this regulation, the following terms are expressed as follows:

1.2.1. Average one hour: the arithmetic average of values measured within about one hour for measures which were done more than one time in one hour, measurement values in one time within about one hour. Hourly average value is measured in many times for 24 hours (one day and night) with specific frequency. Maximum hourly average value among measured values for 24 hours is compared with limits given in Table 1.

1.2.2. Average 8 hours: the arithmetic average of values measured within 8 continuously hours.

1.2.3. Average 24 hours: the arithmetic average of values measured within 24 hours (one day and night).

1.2.4. Yearly average: the arithmetic average of average values of 24 hours which are measured within one year.

## 2. TECHNICAL REGULATIONS

Maximum allowed concentration of toxics in ambient air is given in Table 1.

Table 1: Maximum allowed concentration of toxics in ambient air

Unit: ( $\mu\text{g}/\text{m}^3$ )

| No.                  | Parameters                                  | Chemical formula                                    | Average time | Allowed concentration   |
|----------------------|---|---|--------------|-------------------------|
| Inorganic substances |   |   |              |                         |
| 1.                   | Arsenic (compound, by As)                   | As  | One hour     | 0,03                    |
|                      |   |   | Year         | 0,005                   |
| 2.                   | Arsenic hydride (Arsine)                    | AsH <sub>3</sub>                                    | One hour     | 0,3                     |
|                      |   |   | Year         | 0,05                    |
| 3.                   | Hydrochloric acid                           | HCl   | 24 hours     | 60                      |
| 4.                   | Nitric acid                                 | HNO <sub>3</sub>                                    | One hour     | 400                     |
|                      |   |   | Year         | 150                     |
| 5.                   | Sulfuric acid                               | H <sub>2</sub> SO <sub>4</sub>                      | One hour     | 300                     |
|                      |   |   | 24 hours     | 50                      |
|                      |   |   | Year         | 3                       |
| 6.                   | Dust with silica oxides > 50%               |   | One hour     | 150                     |
|                      |   |   | 24 hours     | 50                      |
| 7.                   | Dust with Chrysotile asbestos               | Mg <sub>3</sub> Si <sub>2</sub> O <sub>3</sub> (OH) | -            | 1 fibre /m <sup>3</sup> |
| 8.                   | Cadmium (smoke with oxide and metal- by Cd) | Cd  | One hour     | 0,4                     |
|                      |   |   | 8 hours      | 0,2                     |
|                      |   |   | Year         | 0,005                   |
| 9.                   | Chlorine                                    | Cl <sub>2</sub>                                     | One hour     | 100                     |
|                      |   |   | 24 hours     | 30                      |
| 10.                  | Chrome VI (compound, by Cr)                 | Cr <sup>+6</sup>                                    | One hour     | 0,007                   |
|                      |   |   | 24 hours     | 0,003                   |

|                    |   |   |          |       |
|--------------------|---|---|----------|-------|
|                    |   |   | Year     | 0,002 |
| 11.                | Hydrofluoride                                 | HF  | One hour | 20    |
|                    |   |   | 24 hours | 5     |
|                    |   |   | Year     | 1     |
| 12.                | Hydrogen cyanide                              | HCN   | One hour | 10    |
| 13.                | Manganese and compound (by MnO <sub>2</sub> ) | Mn/MnO <sub>2</sub>   | One hour | 10    |
|                    |   |   | 24 hours | 8     |
|                    |   |   | Year     | 0,15  |
| 14.                | Nickel (metal and compound, by Ni)            | Ni  | 24 hours | 1     |
| 15.                | Mercury (metal and compound, by Hg)           | Hg  | 24 hours | 0,3   |
| Organic substances |   |   |          |       |
| 16.                | Acrolein                                      | CH <sub>2</sub> = CHCHO   | One hour | 50    |
| 17.                | Acrylonitrile                                 | CH <sub>2</sub> = CHCN  | 24 hours | 45    |
|                    |   |   | Year     | 22,5  |
| 18.                | Aniline                                       | C <sub>6</sub> H <sub>5</sub> NH <sub>2</sub>   | One hour | 50    |
|                    |   |   | 24 hours | 30    |
| 19.                | Acrylic acid                                  | C <sub>2</sub> H <sub>3</sub> COOH  | Year     | 54    |
| 20.                | Benzene                                       | C <sub>6</sub> H <sub>6</sub>   | One hour | 22    |
|                    |   |   | Year     | 10    |
| 21.                | Benzidine                                     | NH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> C <sub>6</sub> H <sub>4</sub> NH <sub>2</sub> | One hour | KPHT  |
| 22.                | Chloroform                                    | CHCl <sub>3</sub>   | 24 hours | 16    |
|                    |   |   | Year     | 0,04  |
| 23.                | Hydrocarbon                                   | C <sub>n</sub> H <sub>m</sub>   | One hour | 5000  |
|                    |   |   | 24 hours | 1500  |

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|                              |                     |   |                  |      |
|------------------------------|---------------------|---|------------------|------|
| 24.                          | Formaldehyde        | HCHO  | One hour         | 20   |
| 25.                          | Naphthalene         | C <sub>10</sub> H <sub>8</sub>                                | 8 hours          | 500  |
|                              |                     |   | 24 hours         | 120  |
| 26.                          | Phenol              | C <sub>6</sub> H <sub>5</sub> OH                              | One hour         | 10   |
| 27.                          | Tetrachloroethylene | C <sub>2</sub> Cl <sub>4</sub>                                | 24 hours         | 100  |
| 28.                          | Vinyl chloride      | ClCH=CH <sub>2</sub>  | 24 hours         | 26   |
| Substances causing bad smell |                     |   |                  |      |
| 29.                          | Ammonia             | NH <sub>3</sub>   | One hour         | 200  |
| 30.                          | Acetaldehyde        | CH <sub>3</sub> CHO   | One hour         | 45   |
|                              |                     |   | Year             | 30   |
| 31.                          | Propanoic acid      | CH <sub>3</sub> CH <sub>2</sub> COOH                          | 8 hours          | 300  |
| 32.                          | Hydrogen sulfide    | H <sub>2</sub> S  | One hour         | 42   |
| 33.                          | Methyl mercaptan    | CH <sub>3</sub> SH  | One hour         | 50   |
|                              |                     |   | 24 hours         | 20   |
| 34.                          | Styrene             | C <sub>6</sub> H <sub>5</sub> CH=CH <sub>2</sub>              | 24 hours         | 260  |
|                              |                     |   | Year             | 190  |
| 35.                          | Toluene             | C <sub>6</sub> H <sub>5</sub> CH <sub>3</sub>                 | One maximum time | 1000 |
|                              |                     |   | One hour         | 500  |
|                              |                     |   | Year             | 190  |
| 36.                          | Xylene              | C <sub>6</sub> H <sub>4</sub> (CH <sub>3</sub> ) <sub>2</sub> | One hour         | 1000 |
| Note: KPHT: not detected     |                     |   |                  |      |



### **3. DETERMINATION METHOD**

Determination method of parameters of air quality shall be made in accordance guidances of national standards or corresponding standards of the international standards:

- TCVN 5969:1995 (ISO 4220:1983) Ambient air. Determination of a gaseous acid air pollution index. Titrimetric method with indicator or potentiometric end-point detection.
- TCVN 6502:1999 (ISO 10312:1995) Ambient air. Determination of asbestos fibres. Direct-transfer transmission electron microscopy method

Parameters given in this regulation without national standards guides shall apply corresponding analysis standards of the international standards.

### **4. ORGANIZATION OF IMPLEMENTATION**

This Regulation is applied for replacing TCVN 5938:2005- Air quality. Maximum allowable concentration of hazardous substances in ambient air which is issued with the enclosure with Decision No. 22/2006/QĐ-BKHCMNT dated December 18th, 2006 by the Minister of Science, Technology and Quality on the compulsory application of Vietnam Standards on Environment.

In that case that national or international standards on the analysis method cited in this regulation have amendments, supplements or replacements, shall apply the new ones.

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