



VIETNAM NATIONAL STANDARD

TCVN 5945: 2010

Second Revision

INDUSTRIAL WASTE WATER. DISCHARGE STANDARDS

(This translation is for reference only)

HA NOI - 2010

Foreword

TCVN 5945:2010 replaces TCVN 5945: 2005.

TCVN 5945:2010 was prepared by Technical Committee TCVN/TC 147 *Water quality*, proposed by Directorate for Standards, Metrology and Quality and promulgated by Ministry of Science and Technology.

INDUSTRIAL WASTE WATER. DISCHARGE STANDARDS**1. Scope**

1.1 This standard defines limit value of parameters and concentration of pollutants in waste water of establishments, processing, trading services...including waste water of the concentrated wastewater treatment factory (commonly called "industrial waste water").

1.2 This standard is used for controlling quality of industrial waste water discharged into water bodies for the purpose of using this water as domestic water, in the water bodies with the purpose of using water at lower quality requirements or in other waste receivers.

2. Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

TCVN 4557-88, Waste water. Determination of temperature

TCVN 6001-1:2008 (ISO 5815-1:2003), Water quality. Determination of biochemical oxygen demand after n days (BOD_n). Part 1: Dilution and seeding method with allylthiourea addition

TCVN 6001-2:2008 (ISO 5815-2:2003), Water quality. Determination of biochemical oxygen demand after n days (BOD_n). Part 2: Method for undiluted samples

TCVN 6053:1995 (ISO 9696:1992), Water quality. Measurement of gross alpha activity in non-saline water. Thick source method

TCVN 6181:1996 (ISO 6703-1:1984), Water quality. Determination of total cyanide

TCVN 6182:1996 (ISO 6595:1982), Water quality. Determination of total arsenic. Silver diethyldithiocarbamate spectrophotometric method

TCVN 6185:1996 (ISO 7887:1985), Water quality. Examination and determination of colour

TCVN 6187-1: 2009(ISO 9308/1:2000), Water quality. Detection and enumeration of Escherichia coli and coliform bacteria. Part 1: Membrane filtration method

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TCVN 6187-2:1996 (ISO 9308/2:1990), Water quality. Detection and enumeration of coliform organisms, thermotolerant coliform organisms and presumptive *Escherichia coli*. Part 2: Multiple tube (most probable number) method

TCVN 6193:1996 (ISO 8288:1986), Water quality. Determination of cobalt nickel, copper, zinc, cadmium, and lead. Flame atomic absorption spectrometric methods

TCVN 6199-1:1995 (ISO 8165/1:1992), Water quality. Determination of selected monovalent phenol. Part 1: Gas chromatographic method after enrichment by extraction

TCVN 6202:2008 (ISO 6878:2004), Water quality. Determination of phosphorus. Ammonium molybdate spectrometric method

TCVN 6219:1995 (ISO 9697:1992), Water quality. Measurement of gross beta activity in non-saline water

TCVN 6490:1999 (ISO 10359-2:1994), Water quality. Determination of fluoride. Part 2: Determination of inorganically bound total fluoride after digestion and distillation

TCVN 6491:1999 (ISO 6060:1989), Water quality. Determination of the chemical oxygen demand

TCVN 6492:1999 (ISO 10523:1994), Water quality. Determination of pH

TCVN 6494:1999 (ISO 10304-1:1992), Water quality. Determination of dissolved fluoride, chloride, nitrite, orthophosphate, bromide, nitrate and sulfate ions, using liquid chromatography of ions. Part 1: Method for water with low contamination

TCVN 6494-2:2000 (ISO 10304-2:1995), Water quality. Determination of dissolved anion by liquid chromatography of ions. Part 2: Determination of bromide, chloride, nitrate, nitrite, orthophosphate and sulfate in waste water

TCVN 6494-3:2000 (ISO 10304-3:1997), Water quality. Determination of dissolved anion by liquid chromatography of ions. Part 3: Determination of chromate, iodide, sulfite, thiocyanate and thiosulfate

TCVN 6494-4:2000 (ISO 10304-4:1997), Water quality. Determination of dissolved anion by liquid chromatography of ions. Part 4: Determination of chlorate, chloride and chlorite in water with low contamination

TCVN 6620:2000 (ISO 6778:1984), Water quality. Determination of ammonium. Potentiometric method

TCVN 6222:2008 (ISO 9174:1998), Water quality. Determination of chromium. Atomic absorption spectrometric methods

TCVN 6625:2000 (ISO 11923:1997), Water quality. Determination suspended solids by filtration through glass-fibre filters

TCVN 6626:2000 (ISO 11969:1996), Water quality. Determination arsenic. Atomic absorption spectrometric method (hydride technique)

TCVN 6637:2000 (ISO 10530:1992), Water quality. Determination of dissolved sulfide. Photometric method using methylene blue

TCVN 6658:2000 (ISO 11083:1994), Water quality. Determination of chromium (VI). Spectrometric method using 1,5-diphenylcarbazide

TCVN 6831-1:2010 (ISO 11348-1:2007), Water quality. Determination of the inhibitory effect of water samples on the light emission of *Vibrio fischeri* (Luminescent bacteria test). Part 1: Method using freshly prepared bacteria

TCVN 6831-2:2010 (ISO 11348-2:2007), Water quality. Determination of the inhibitory effect of water samples on the light emission of *Vibrio fischeri* (Luminescent bacteria test). Part 2: Method using liquid-dried bacteria

TCVN 6831-3:2010 (ISO 11348-3:2007), Water quality. Determination of the inhibitory effect of water samples on the light emission of *Vibrio fischeri* (Luminescent bacteria test). Part 3: Method using freeze-dried bacteria

TCVN 7723:2007 (ISO 14403:2002), Water quality. Determination of total cyanide and free cyanide by continuous flow analysis

TCVN 7724:2007 (ISO 17825:2006), Water quality. Determination of mercury. Method using atomic fluorescence spectrometry

TCVN 7877:2008 (ISO 5666:1999), Water quality. Determination of mercury

TCVN 7939:2008 (ISO 11842:2005), Water quality. Determination of chromium(VI). Photometric method for weakly contaminated water

TCVN 7875:2008 (ISO 5666:1999), Water. Determination of oil and grease. Partition-infrared method

TCVN 7876:2008, Water. Determination of organochlorine pesticides content. Liquid-liquid extraction gas chromatographic method

ISO 7393-1:2009, Sterilization of health care products. Radiation. Part 1: Requirements for development, validation and routine control of a sterilization process for medical devices.

ISO 7393-2:2000, Water quality- Determination of free chloride and total chloride- Colorimetric method using N,N-diethyl-1,4-phenylenediamine for routine control purposes

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ISO 29441:2010, Water quality- Determination of total nitrogen after UV digestion- Method using flow analysis (CFA and FIA) and spectrometric detection.

3. Limit values

3.1 Limit value of parameters and concentration of pollutants in industrial waste water discharged into water bodies should not exceed the corresponding values given in Table 1.

3.2 Industrial waste water with parameters and concentration of pollutants equal to or smaller than values given in the column A would be poured into water bodies which are used for water resources of domestic water.

3.3 Industrial waste water with parameters and concentration of pollutants equal to or smaller than values given in the column B would be poured into other waste receiver water bodies except water bodies given in column A.

3.4 Sampling method, analysis, calculation, determination of each parameter and concentration of pollutants are given in current Vietnam National Standards (TCVNs) or appointed by competent authorities.

Table 1- Limit value of parameters and concentration of pollutants in industrial waste water

No.	parameters	Unit	Limit value		Method
			A	B	
1.	Temperature	°C	40	40	TCVN 4557-88
2.	pH	-	6 to 9	5,5 to 9	TCVN 6492:1999 (ISO 10523:1994)
3.	Taste	-	Comfortable	Comfortable	Sensory
4.	Colour, Co-Pt at pH=7	mg/l	20	70	TCVN 6185:2008 (ISO 7887:1994)
5.	BOD ₅ (20°C)	mg/l	30	50	TCVN 6001-1:2008 (ISO 5815-1:2003) TCVN 6001-2:2008 (ISO 5815-1:2003)
6.	COD	mg/l	50	100	TCVN 6491:1999 (ISO 6060:1989)
7.	Suspended solids	mg/l	50	100	TCVN 6625:2000 (ISO 11923:1997)
8.	Arsenic	mg/l	0,05	0,1	TCVN 6626:2000 (ISO 11969:1996) TCVN 6182: 1996 (ISO 6595:1982(E))
9.	Mercury	mg/l	0,005	0,01	TCVN 7724:2007 (ISO 17825:2006) TCVN 7877:2008 (ISO 5666:1999)
10.	Lead	mg/l	0,1	0,5	TCVN 6193:1996 (ISO 8288:1986)
11.	Cadmium	mg/l	0,1	0,2	TCVN 6193:1996 (ISO 8288:1986)

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No.	parameters	Unit	Limit value		Method
			A	B	
12.	Chrome (VI)	mg/l	0,05	0,1	TCVN 6658:2000 (ISO 11083:1994) TCVN 7939:2008 (ISO 11842:2005)
13.	Chrome (III)	mg/l	0,2	1	TCVN 6222:2008 (ISO 9174:1998)
14.	Copper	mg/l	2	2	TCVN 6193: 1996 (ISO 8288:1986)
15.	Zinc	mg/l	3	3	TCVN 6193:1996 (ISO 8288:1986)
16.	Nickel	mg/l	0,2	0,5	TCVN 6193:1996 (ISO 8288:1986)
17.	Cyanua, by HCN	mg/l	0,07	0,7	TCVN 6181:1996 (ISO 6703/1:1984)
18.	Phenol	mg/l	0,1	0,5	TCVN 6199-1:1995 (ISO 8165/1:1992)
19.	Total oils	mg/l	1	5	TCVN 7875:2008 (ISO 5666:1999)
20.	Residue Chloride	mg/l	1	2	ISO 7393-1:2000 ISO 7393-2:2000
21.	Pesticides	mg/l	Not detected		TCVN 7876:2008
22.	Sulfur	mg/l	0,2	0,5	TCVN 6637:2000 (ISO 10530:1992
23.	Chloride (poured into sweet water region with lower chloride content)	mg/l	500	600	TCVN 6494-1:1999 (ISO 10304-1:1992) TCVN 6494-2:2000

No.	parameters	Unit	Limit value		Method
			A	B	
					(ISO 10304-2:1995) TCVN 6494-3:2000 (ISO 10304-3:1997) TCVN 6494-4:2000 (ISO 10304-4:1997)
24.	Ammonium (by nitrogen)	mg/l	5	10	TCVN 6620:2000 (ISO 6778:1984)
25.	Total nitrogen	mg/l	15	30	ISO 29441:2010
26.	Total phosphor	mg/l	4	6	TCVN 6202:2008 (ISO 6878:2004)
27.	Coliforms	MPN/100ml	3000	5000	TCVN 6187-1:2009 (ISO 9308-1:2000) TCVN 6187-2:1996 (ISO 9308-2:1990)
28.	Toxicity for <i>Vibrio fischeri</i> (30 min) TU	mg/l	TU Toxicity units 8		TCVN 6831-1:2010 (ISO 11348-1:2007) TCVN 6831-2:2010 (ISO 11348-2:2007) TCVN 6831-3:2010 (ISO 11348-3:2007)
29.	Gross alpha activity α	Bq/l	0,1	0,1	TCVN 6053:1995 (ISO 9696:1992)
30.	Gross beta activity β	Bq/l	1,0	1,0	TCVN 6219:1995 (ISO 9697:1992)