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Government of India
Ministry of Commerce and Industry
Department of Industrial Policy and Promotion
(Central Boilers Board)

New Delhi, the 29th September, 2000.

Notification

G.S.R._____.- Whereas certain draft regulations, further to amend the Indian Boiler Regulations, 1950, were published, as required by sub-section (1) of section 31 of the Indian Boilers Act, 1923 (5 of 1923), at pages 1071 to 1079 in Part II, Section 3, Sub-section (i) of the Gazette of India, dated the 3rd June, 2000 vide notification of the Government of India in the Ministry of Commerce and Industry (Department of Industrial Policy and Promotion) (Central Boilers Board) number G.S.R. 191, dated the 22nd May, 2000 for inviting objections and suggestions from persons likely to be affected thereby till the expiry of forty-five days from the date on which copies of the Gazette containing the said notification were made available to the public;

And whereas the copies of the said Gazette were made available to the general public on the 9th day of June, 2000;

And whereas no objections or suggestions were received within the specified period;

Now, therefore, in exercise of the powers conferred by section 28 of the Indian Boilers Act, 1923, the Central Boilers Board hereby makes the following regulations further to amend the Indian Boiler Regulations, 1950, namely:-

1. (1) These regulations may be called the Indian Boiler (Amendment) Regulations, 2000.

(2) They shall come into force on the date of their publication in the Official Gazette.

2, In the Indian Boiler Regulations, 1950 (hereinafter referred to as the said regulations), in regulation 3, after sub-regulation (4), the following shall be added, namely :-

"(4A) The tubes of boilers and heat exchangers made of Titanium and other exotic metals may be approved as per international codes, including ASME, BS, DIN, TEMA with the minimum thickness specified in those codes of manufacture.".

3. In the said regulations, in regulation 10, for clause (d), the following shall be substituted, namely:-

"(d) Plates having thickness of 12 mm and less than that, not intended for hot forming, can be supplied in unnormalized or as rolled condition subject to the condition that the code of manufacture provides for the same. For plates having thickness more than 12mm, not intended for hot forming, shall be supplied in the normalized conditions:

Provided that the normalizing may be exempted if it is demonstrated by the manufacturer that equivalent properties can be produced by the rolling subsequent cooling."

4. In the said regulations, for regulation 382, the following shall be substituted, namely:-

"382.- Engraving of registry number.- (a) The registry number of every boiler shall, within a period of one month from the date of receipt thereof be cut in the front plate or any such position as shall be pointed out by the Inspector. The device for each State and Union territory shall be distinguished by the following letters :-

Andaman and Nicobar Islands	A&N
Andhra Pradesh	AP
Assam	A
Bihar	BR
Dadra & Nagar Haveli	DNH
Daman & Diu	DU
Delhi	D
Goa	G
Gujarat	GT
Haryana	HA
Himachal Pradesh	HP
Karnataka	KTK
Kerala	K
Laccadive, Minicoy & Aminidivi Islands	LI
Madhya Pradesh	MP
Maharashtra	MR
Manipur	MA
Meghalaya	ML
Nagaland	NL
Orissa	OR
Pondicherry	PY
Punjab	PI
Rajasthan	RJ
Tamilnadu	T
Tripura	TR
Uttar Pradesh	UP
West Bengal	WBL

The distinguishing letters shall be engraved above a number and separated therefrom by a horizontal line 64 mm in length. The letters and figures shall be 25 mm in height and of suitable breadth, provided that in the case of small boilers the letters and figures of the device may, in the discretion of the Chief Inspector, be reduced to 10 mm in height. The whole shall be enclosed in a rectangle, the upper and lower sides of which shall be 76 mm apart and 6 mm clear of the top of the letters and the bottom of the figures respectively as indicated below :-

MR

1234

In the case of registration of small industrial boilers, the letter "S" shall be added as a prefix to the registration number below the distinguishing letters for State or Union territories as indicated below ;

UP
S - ……

The side lines shall be at equal distance clear from the figures. The engraving shall not be less than 0.4 mm in depth.

(b) The engraving shall be complete and ready for verification within one month from the date of receipt of registry number, and the fact shall be reported to the Chief Inspector of Boilers within this period.

(c) Boilers having registry devices different from those prescribed herein shall have such devices altered or crossed out and engraved a new one in conformity with those prescribed above. The original numbers of such boilers shall be retained in the new device, provided that in the case of boilers which were registered in a State or Union Territory which has since become extinct, a new number shall be given by the State or Union Territory where the boiler is operating. A number once allotted to a boiler shall not be used again for another boiler.".

5. In the said regulations, regulation 393A shall be omitted.

6. In the said regulations, for Chapter XV, the following shall be substituted, namely:-

"CHAPTER XV

FEED WATER FOR BOILER

623. **Scope** - (a) This chapter lays down specifications for feed water and boiler water for low and medium pressure boilers (boilers operating up to 60 kg/cm$^{2)}$.

(b) For boilers operating at pressures higher than 60 kg/cm^2, better quality of water to IS:10496-1983 may be adopted.

624. Requirements - The water shall comply with the requirements given in Table 1 when tested by the methods prescribed in col. 6 and 7 of the table.

625. Sampling - Sampling shall be done following general directions given in **2** of IS:3025-1964*. In particular, the following points shall be observed :

a) It is necessary that a stainless steel or monel metal coil is fitted on the sampling cock so that the temperature of the water sample will be well below the boiling point at atmospheric pressure and there is no risk of aeration and concentration due to flashing into steam; and

b) Samples of feed water shall be collected from the delivery of the boiler feed pump, samples of boiler water from the top drum, and samples of condensate from the delivery of the condensate extraction pump.

626. Test Methods - Tests shall be carried out as prescribed in the appropriate clauses of IS: 3025-1964* and IS : 3550-1965! as indicated against the characteristics in table 1.

TABLE 1 CHEMICAL REQUIREMENTS OF FEED WATER AND BOILER WATER FOR LOW AND MEDIUM PRESSURE BOILERS

(Regulation 624 and 626)

Sl.. No.	CHARACTERSTIC	REQUIREMENT FOR BOILER PRESSURE			METHOD OF TEST (Ref. to Cl. No. of)	
		Up to 2.0 MN/m^2	2.1 to 3.9 MN/m^2	4.0 to 5.9 MN/m^2	IS : 3550-1965*	IS : 3025-1964!
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	*Feed Water*					
	a) Total hardness (as $CaCO_2$), mg/l, *Max*	10	1.0	0.5	--	16.1
b)	*p*H value	8.5 to 9.5	8.5 to 9.5	8.5 to 9.5	--	8
	c) Dissolved Oxygen, mg/1, *Max*	0.1	0.02	0.01	25	--
	d) Silica (as SiO_2), mg/l, *Max*	--	5	0.5	16	--
ii)	*Boiler Water*					
	a) Total hardness (of filtered sample) (as Ca CO_3), mg/l,	--------	Not detectable	----------	--	16.1
	b) Total alkalinity$^{\alpha}$ (as Ca CO_3), mg/l, *Max*	700	500	300	--	13
	c) Caustic alkalinity (as Ca CO_3), mg/l *Max*	350	200	60	--	15
	d) pH value	11.0 to 12.0	11.0 to 12.0	10.5 to 11.0	--	8
	e) $^{\beta}$ Residual sodium sulphite (as Na_2SO_3) mg/l	30 to 50	20 to 30	--	--	21
	f) Residual hydrazine (as N_2H_4), mg/l	0.1 to 1 (if added)	0 .1 to 0.5 (if added)	0.05 to 0.3	26	--

(1)	(2)	(3)	(4)	(5)	(6)	(7)
g)	φ Ratio Na_2SO_4/ Caustic alkalinity (as NaOH)	---------- above 2.5 ----------			--	20.2 and 15
	or Ratio $NaNO_3$/ total alkalinity (as NaOH)	---------- above 0.4 ----------			--	48 and 13
h)	Phosphates (as PO_4), mg/l (if added)	20 to 40	15 to 30	5 to 20	14	--
i)	Total dissoslved solids mg/1, *Max*	3500σ	2500	1500	9	12
k)	Silica (as SiO_2), mg/1	Less than 0.4 of caustic alkalinity		15	16	30

Note 1- *Recovery Boilers* - The boiler feed water used shall be completely de-mineralized and also the boiler feed water and boiler water shall be conditioned in accordance with high pressure boilers working at 60 kg/cm^2 and above (see IS : 4343-1967**)

Note 2 - When feed water heaters are of copper or copper alloy constructions, the *p*H of the feed water shall be maintained between 8.5 and 9.2 while when feed water heaters are of iron constructions, the *p*H of the feed may be maintained between 8.5 and 9.5.

Note 3 - *Silica in Boiler Water* - Lower concentration of silica may be advisable for steam of turbines, which generally requires less than 0.02 mg/1 silica in steam.

* Methods of test for routine control for water used in industry.

! Methods of sampling and test (physical and chemical) for water used in industry.

α Total alkalinity should preferably be about 20 percent of total dissolved solids.

β Shall not apply if reducing agents other than sodium sulphite are used.

φ For riveted boilers only.

σFor shell type boilers depending on parameters, the limits can be relaxed.

** Code of practice for treatment of water for high pressure boilers (under revision).".

(V.K. GOEL)
Secretary, Central Boilers Board
(File No. 6(8)/99-Boilers)

Footnote:- The principal regulations were published in the Gazette of India vide S.O. 600, dated the 15th September, 1950 and subsequently amended vide notifications –

(i) G.S.R. 178, dated the 24th March, 1990;
(ii) G.S.R. 179, dated the 24th March, 1990;
(iii) G.S.R. 488, dated the 9th October, 1993;
(iv) G.S.R. 516 dated the 23rd October, 1993;
(v) G.S.R. 634 dated the 25th December, 1993;
(vi) G.S.R. 107 dated the 26th February, 1994;
Errata G.S.R. 223 dated the 14th May, 1994;
(vii) G.S.R. 250 dated the 4th June, 1994;
(viii) G.S.R. 402 dated the13th August, 1994;
(ix) G.S.R. 427 dated the 20th August, 1994;
(x) G.S.R. 562 dated the12th November, 1994;
(xi) G.S.R. 607 dated the10th December, 1994;
(xii) G.S.R. 83 dated the 25th February, 1995;
(xiii) G.S.R. 93 dated the 4th March, 1995;
(xiv) G.S.R. 488 dated the 9th November, 1996;
(xv) G.S.R. 582 dated the 28th December, 1996;
(xvi) G.S.R. 59 dated the 25th January, 1997;
(xvii) G.S.R. 117 dated the 1st March, 1997;
(xviii) G.S.R. 172 dated the 29th March, 1997.
(xix) G.S.R. 221 dated the 21st November, 1998.
(xx) G.S.R. 131 dated 1st May, 1999.
(xxi) G.S.R. 139 dated 8th May, 1999.
(xxii) G.S.R. 237 dated 31st July, 1999.
(xxiii) G.S.R. 345 dated 23rd October, 1999.

To

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