TEMPLATE FOR SENDING COMMENTS ON BIS DOCUMENTS

Date:		Document No.:	IS 5182 (Part 9)	Title of the Document:	~~Oxidants~~		
Name of the Commentator/ Organization:	S.K. GOSWAMI				Abbreviation of the Commentator/Organization:	SKG	

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Abbreviation of the Commentator /Organization	**Clause/ Subclause No.** (e.g. 3.1)	**Paragraph No. / Figure No. / Table No.** (e.g. Table 1)	**Type of Comment** [1]	**Comments/Suggestions along with Justification for the Proposed Change**	**Proposed Change/Modified Wordings**	**Committee Decision**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
SKG	8.2	-	Editorial	The heading of the sub - clause should be altered.	The heading may be changed to '**Stock Iodine solution (0.025 M/0.05 N)**' instead of 'Standard iodine solution'.	
SKG	8.2	-	Technical	The standardization sentence should be added at the end of the sub - clause.	The following text may be added at the end of the sub - clause : Standardize shortly before use against $Na_2S_2O_3$ (~0.025 N) solution. The sodium thio-sulphate solution is then standardized against potassium iodate solution (0.025 N) or potassium dichromate solution (0.025 N).	
SKG	New sub - clause 8.3	-	Technical	An intermediate iodine solution (0.001 M) should be prepared.	The text of the new sub - clause 8.3 may be written as follows : **8.3 Intermediate I_2 solution (0.001 M):** Pipette exactly 4 ml. of the 0.025 M stock iodine solution into a 100 ml. volumetric flask and dilute to the mark with absorbing solution. Protect from strong light. Discard after use.	
SKG	New sub clause 8.4	-	Technical	A standard solution for preparing calibrating standards should be prepared.	The text of the new sub - clause 8.4 may be written as follows : **8.4 Calibrating iodine solution :**	

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					For calibration purposes, dilute exactly 5.11 ml of the intermediate iodine solution (0.001 M) just before use to 100 ml with absorbing solution. The concentration of this solution is equivalent to 1 µL of O_3/mL. Discard this solution after use.	
SKG	New sub - clause 8.5	-	Technical	The preparation of potassium iodate solution (0.025 N) should be added.	The text of the sub - clause 8.5 may be written as follows : **8.5 Potassium iodate solution (0.025 N) :** Dry Potassium iodate (KIO_3) at 120-140°C up to 2 hours. Dissolve 0.4459 gm KIO_3 in 500 ml distilled water.	
SKG	New sub - clause 8.6	-	Technical	The preparation of potassium dichromate solution (0.025 N) should be added.	The text of the sub - clause 8.6 may be written as follows : **8.6 Potassium dichromate solution (0.025 N) :** Dry potassium dichromate at 105^0C for 2 hours. Dissolve 0.61295 gm $K_2Cr_2O_7$ in 500 ml of distilled water.	
SKG	New sub clause 8.7	-	Technical	Potassium iodide is required for standardization of $Na_2S_2O_3$ solution.	The text of the sub - clause 8.7 may be written as follows : **8.7** Potassium iodide KI.	

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SKG	New sub - clause 8.8	-	Technical	Concentrated sulphuric acid is required for standardization of $Na_2S_2O_3$ solution.	The text of the new sub - clause 8.8 may be written as follows : **8.8** Sulphuric acid, concentrated.	
SKG	10.1	-	Technical	The sub - clause 10.1 under clause **10. Calibration** may be modified. Justification : It is inconvenient to pipette 0.1 ml to 0.5 ml of solution for preparing the calibrating standards. A slight error in pipetting may lead to error in calibration. Therefore preparation of calibration standards by taking 1 ml to 10 ml in 10 ml volumetric flasks is more convenient and reduces chance of error.	The clause **10. Calibration** may be re-written as follows : Obtain a range of calibration points containing from 1 µL to 10 µL of ozone equivalent per 10 ml of solution. Prepare the working standards by adding 1 ml, 2 ml,, 4 ml, 6 ml, 8 ml and 10 ml of the calibrating iodine solution (see **sub-clause 8.4**) to 10 ml volumetric flasks and making up the volume with absorbing solution. Read the absorbance of each of the standard solutions at 352 nm. against distilled water as reference. Plot the absorbance readings of the standard solutions against the concentration of O_3 in µL/10 ml. absorbing reagent. Determine the slope of the curve. Do not extrapolate beyond the highest concentration.	
SKG	New sub - clause	-	Tech	Standardization procedure of sodium thio-sulphate	The text of the new sub- clause 10.2 may be written as	

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	10.2		nical	solution should be included.	follows : **10.2 Standardization of sodium thio-sulphate solution (~0.025 N) :** Take 25 ml. of KIO_3 (0.025 N) or $K_2Cr_2O_7$ solution (0.025 N) in a 250 ml. glass-stoppered conical flask. Add 5 ml. concentrated H_2SO_4 to it. Add approx. 1 gm. potassium iodide KI to the flask. Immediately stopper it and keep it in the dark for a few minutes. Then titrate against $Na_2S_2O_3$ solution as titrant. Note the titre value. Determine the strength of the $Na_2S_2O_3$ solution.	
SKG	11.1	-	Technical	The time period for analysis after sample collection should be increased.The 30 to 60 min. time period is too short. Justification : It is practically not possible always to transport the sample to the laboratory after collection within the stipulated 60 minutes. It is also impractical to carry the photometer or spectrophotometer to the sampling site in order to	The absorbance reading of the sample should be read within 4 hrs or so as fixed after discussion with the committee members in the CHD 35 meeting.	

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				analyse the sample.		
SKG	12.0	-	Technical	The existing text in the clause **12. Calculation** and the subsequent sub - clauses may be deleted.	The text in the clause may be modified as follows : **12. Calculation** Record the volume of sample collected in Litres. Generally the correction of the sample volume to standard conditions is slight and may be omitted. The total µL of O_3/10 ml of reagent is determined from the calibration curve. The concentration of O_3 in the gas phase in µL/L or µg/ml or ppm is given by : O_3 µg/ml = $\frac{\text{corrected abs. of sample x cal. factor}}{V}$ = $\frac{\text{total µL ozone per 10 ml}}{V}$ where V = Volume of air sampled (in litres) and cal. Factor = 1/slope of the curve The concentration of O_3 in terms of µg/m^3 at 760 mm. Hg	

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					and 25°C is obtained when desired from the value of µL/L by : $\mu g\ O_3/m^3 = \frac{O_3 \text{ in } \mu g/ml \times 48}{24.47} \times 1000$ $= 1962 \times \mu g/ml$	

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