South African National Standard (SANS 241) for Drinking Water 20112011

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South African National Standard (SANS 241) for Drinking Water 20112011

- Class I limits - suitable for lifetime consumption
- Class II limits - maximum allowable for limited duration
  - were used as acceptable limits for normal operation
- Application information was an Informative Annexure, i.e. non-mandatory

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Principles

- Overall objective is the protection of public health
- National applicability, not site-specific
- Based on WHO limits:
  - All health-related WHO limits should be maintained – *LATEST TO APPLY*
  - Aesthetic limits can be slightly relaxed if there is a significant economic implication of a more stringent limit

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- Standard divided into SANS 241-1 and SANS 241-2:
  - Part 1 includes the numerical limits
  - Part 2 is the application of SANS 241-1
  - Both Parts are Normative i.e. mandatory

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Microbiology - Table 1

Determinands classified according to risk

Single limit, not statistical approach

1 **Determinand**	2 **Risk**	3 **Unit**	4 **Standard limits**
E. coli [a] or faecal coliforms [b]	Acute health – 1	Count per 100 mL	Not detected
Cytopathogenic viruses [c]	Acute health – 2	Count per 10 L	Not detected
Protozoan parasites [d] *Cryptosporidium species* *Giardia species*	 Acute health – 2 Acute health – 2	 Count per 10 L Count per 10 L	 Not detected Not detected
Total coliforms [e]	Operational	Count per 100 mL	≤ 10
Heterotrophic plate count [f]	Operational	Count per mL	≤ 1 000
Somatic coliphages [c g]	Operational	Count per 10 mL	Not detected

Table 2: Physical, aesthetic, operational & chemical

May have two limits for different risks

Single limit per risk

1	2	3	4
Determinand	**Risk**	**Unit**	**Standard limits [a]**
Physical and aesthetic determinands			
Free chlorine	Chronic health	mg/L	≤ 5
Monochloramine	Chronic health	mg/L	≤ 3
Colour	Aesthetic	mg/L Pt-Co	≤ 15
Conductivity at 25 °C	Aesthetic	mS/m	≤ 170
Odour or taste	Aesthetic	–	Inoffensive
Total dissolved solids	Aesthetic	mg/L	≤ 1 200
Turbidity [b]	Operational	NTU	≤ 1
	Aesthetic	NTU	≤ 5
pH at 25 C [c]	Operational	pH units	≥ 5 to ≤ 9,7

Other Changes

- Additional determinands required to be monitored, for example uranium, algal toxins
- Some limits are more stringent, for example Cadmium from 10 µg/L (2006) to 3 µg/L (2011)

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Analysis

- Any method is acceptable which can offer the necessary limit of quantification with regard to:
  - Trueness
  - Precision
  - Limit of detection
- 'Test-kit' methods may be used, particularly for operational monitoring, if they offer the required performance

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