

Proposed Level 3 Bacteria and virus treatment rules

Where we propose a change to the rule type and reporting and compliance periods, we have made the text red to signify the change.

[illegible]

4.10.1.2 T3 Bacterial Rules for Water Disinfected with Chlorine Dioxide			Removed					
T3.8	Treated water must achieve a chlorine C.t value of at least 15 min.mg/L for at least 95 % of each day.	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed	N/A	As discussed earlier in this table, we propose removing chlorine dioxide as an option for bacteria/virus treatment as we are not aware of it being used by any suppliers.	N/A	Neutral
T3.9	T ₁₀ contact time of at least 5 minutes must be demonstrated.	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed	N/A	See above.	N/A	Neutral
T3.10	Turbidity of water leaving the treatment plant must be less than 1.0 NTU for at least 95% of each day. ⁴⁴	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed	N/A	See above.	N/A	Neutral
T3.11	Turbidity must not exceed 2.0 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed	N/A	See above	N/A	Neutral
T3.7 Table 20	Parameters that need to be continuously monitored and where they need to be monitored:	Monitoring CP: 1 Day RP: 1 Year	N/A	Removed	N/A	See above.	N/A	Neutral
	<i>Parameters:</i> Chlorine dioxide <i>Where it needs to be monitored:</i> Water at a point after the prescribed disinfection contact time has elapsed.							
	<i>Parameters:</i> FAC if used in combination with chlorine dioxide <i>Where it needs to be monitored:</i> Water at a point after the prescribed disinfection contact time has elapsed.							
	<i>Parameters:</i> pH <i>Where it needs to be monitored:</i> Water at a point after the prescribed disinfection contact time has elapsed.							
	<i>Parameters:</i> Turbidity <i>Where it needs to be monitored:</i> Water at a point after the prescribed disinfection contact time has elapsed.							
	<i>Parameters:</i> Flow <i>Where it needs to be monitored:</i> Water leaving the contact tank unless there is a high-level outlet weir in which case water entering the contact tank is acceptable. A calculated outlet flow based on inlet flow and contact level change is also an acceptable approach.							
	Water level in the contact tank (if used)							
	Values that need to be continuously monitored: - FACE if chlorine is used in combination with chlorine dioxide. - Total disinfectant - T10 contact time - C.t							
T3.10 Footnote 44	Where lime is used for pH adjustment, samples may be taken before the lime is dosed	N/A	N/A	Removed	N/A	See above	N/A	Neutral
4.10.1.3 T3 Bacterial Rules for Water Disinfected with Ozone			T3.BV.Z Ozone Rules					
T3.12 Table 21	Requirements for Water Disinfected with Ozone	Monitoring CP: 1 Day RP: 1 Year	T3.BV.Z1	Drinking water treated by ozone treatment processes must be continuously monitored for the following:	Assurance CP: 1 Year RP: 1 Year	This proposed rule consolidates a rule, table and footnote into a single rule to make compliance more straightforward. We also propose changing this rule from a monitoring rule to an assurance rule.	N/A	Neutral

	Parameters that need to be continuously monitored and where they need to be monitored:			(a) ozone residual at the outlet of the contact tank (alternative monitoring sites may be used if the water supplier can demonstrate that they improve the accuracy of the monitoring information): (b) turbidity at a point immediately before or after the contact tank: (c) flow at the— (i) outlet of the contact tank; or (ii) inlet of the contact tank, if a high-level outlet weir is installed; (d) temperature of water leaving the contact tank; (e) the water level in the contact tank; (f) T ₁₀ Contact Time; and (g) C.t.				
T3.12-ozon	- Parameters: Ozone Residual - Where it needs to be monitored: Water leaving the contact tank.⁴⁵							
T3.12-turb	- Parameters: Turbidity - Where it needs to be monitored: Water at a point immediately before or after the contact tank.							
T3.12-flow	- Parameters: Flow - Where it needs to be monitored: Water leaving the contact tank unless there is a high-level outlet weir in which case water entering the contact tank is acceptable. A calculated outlet flow based on inlet flow and contact level change is also an acceptable approach.							
T3.12-leve	Level of water in the contact tank (if used).							
T3.12-t10	Values that need to be continuously monitored: T₁₀ Contact Time.							
T3.12-c.t	Values that need to be continuously monitored: C.t (Ozone x T10 Contact Time).							
Table 21 Footnote 45	Additional monitoring sites may be used in addition to the contact tank exit point if the water supplier can demonstrate that they improve the accuracy of the monitoring information.							
T3.13	C.t of at least 1.2 mg.min/L for more than 95% of each day must be achieved.	Monitoring CP: 1 Day	T3.BV.Z2	The following requirements must be met for turbidity and ozone:	Monitoring CP: 1 Day	This proposed rule consolidates two rules into one single rule.	N/A	Reduction in annual reporting requirements.
T3.14	Turbidity must not exceed 5.0 NTU for the duration of any consecutive 15-minute period.	RP: 1 Month Monitoring CP: 1 Day RP: 1 Year		(a) turbidity of water leaving the contact tank must not exceed 5.0 NTU for the duration of any consecutive 15-minute period. (b) an ozone C.t value of at least 1.2 min.mg/L for at least 95% of the time the plant is producing drinking water each day.	RP: 1 Month	We propose increasing reporting frequency from annually to monthly for turbidity monitoring requirements. This responds to feedback we have received from some suppliers that reporting more frequently would reduce the burden of annual reporting by spreading analysis and reporting throughout the year.		
4.10.1.3 T3 Bacterial Rules for Water Disinfected with Ultraviolet Light				T3.BV.U UV Rules				
T3.15 Table 22	UV certification/validation: The equipment must be certified and operated to meet the RED dose of 40 mJ/cm2 (or equivalent) using at least one of the: <i>Ultraviolet Disinfection Guidance Manual (USEPA 2006b).</i> <i>DVGW Technical Standard W294 (DVGW 2006)</i> <i>ÖNORM M 5873-1: 2020 01 01.</i> ⁴⁸ <i>NSF/ANSI 55 (NSF, ANSI nd) for Class A systems (for populations of up to 5000) – 3-log.</i>	Monitoring CP: 1 Day RP: 1 Year	T3.BV.U1	UV units must be validated to (and operated within the specifications of) a designated UV validation standard.	Assurance CP: 1 Year RP: 1 Year	This proposed rule consolidates a rule, footnote and a table into a single rule and proposes having a definition of designated UV validation standard in the interpretations section. We also propose changing this rule from a monitoring rule to an assurance rule.	N/A	Neutral
Table 22 Footnote 48	UV reactors installed before 1 January 2020 can be certified to öNORM M5873 (Österreichisches Normungsinstitut 2001).							
T3.15 Table 22	T3 Requirements for UV Disinfection Parameters that need to be continuously monitored and where they need to be monitored:	Monitoring CP: 1 Day RP: 1 Year	T3.BV.U2	Drinking water treated by UV light must be continuously monitored for the following:	Assurance CP: 1 Year RP: 1 Year	This proposed rule consolidates a table and a footnote into a rule. We also propose making this rule an assurance rule.	N/A	Neutral

T3.15-uvt	<i>Parameters:</i> UVT <i>Where it needs to be monitored:</i> Water entering or leaving the UV reactor(s) ⁴⁷			(a) UVT, at a point where water enters or leaves the UV unit(s), except UV units validated to NSF/ANSI 55 - Class A: (b) turbidity, at a point where water enters or leaves the UV unit(s), including upstream filter monitoring if there is no other process between the filters and the UV unit(s): (c) UVI or UV dose, at the same point in the UV unit as that used for certification/validation: (d) flow, at a point representative of water entering or leaving the units, which meets the relevant validation requirements.				
T3.15-Turb	<i>Parameters:</i> Turbidity <i>Where it needs to be monitored:</i> Water entering or leaving the UV reactor(s). Can include upstream filter monitoring if there is no other process between the filters and the UV reactors.							
T3.15-uvi	<i>Parameters:</i> UVI or dose <i>Where it needs to be monitored:</i> The same point in the reactor as that used for certification/validation.							
T3.15-flow	<i>Parameters:</i> Flow <i>Where it needs to be monitored:</i> At a point representative of water entering or leaving the reactor(s).							
Table 22 Footnote 47	Does not apply to UV units certified to <i>NSF/ANSI 55 (NSF, ANSI nd) for Class A systems (for populations of up to 5000) – 3-log.</i>							
T3.85	All water passing through the treatment plant must pass through the UV reactor(s) and be within the reactor's certified flow range for at least 95% of each day.	Assurance CP: 1 Year RP: 1 Year	T3.BV.U3	Water flow rate must be within the UV unit's certified flow range for at least a minimum RED dose of 40 mJ/cm ² (or equivalent) for at least 95% of the time the UV unit is operating each day.	Assurance CP: 1 Year RP: 1 Year	This rule is proposed to align bacterial and virus rules with protozoa rules requirements.	N/A	Neutral
T3.16	A reduction equivalent dose (RED) of not less than 40 mJ/cm ² (or equivalent) must be achieved for not less than 95 % of each day.	Monitoring CP: 1 Day RP: 1 Year	T3.BV.U4	A reduction equivalent dose of not less than 40 mJ/cm ² (or equivalent) must be achieved for not less than 95 % of the time the plant is producing drinking water each day.	Monitoring CP: 1 Day RP: 1 Month	We propose increasing reporting frequency from annually to monthly. This responds to feedback we have received from some suppliers that reporting more frequently would reduce the burden of annual reporting by spreading analysis and reporting throughout the year.	N/A	Reduction in annual reporting requirements.
T3.17	The RED UV dose must be not less than 40 mJ/cm ² for any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Year	T3.BV.U5	The reduction equivalent dose delivered by a UV unit must not be less than 40 mJ/cm ² (or equivalent) for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Month	This proposed change clarifies that this rule applies to each UV unit in production. This is because if one unit fails, the plant fails for the day. We propose increasing reporting frequency from annually to monthly. This responds to feedback we have received from some suppliers that reporting more frequently would reduce the burden of annual reporting by spreading analysis and reporting throughout the year.	N/A	Reduction in annual reporting requirements.
T3.18	Turbidity must not exceed 5.0 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Year	T3.BV.U6	Turbidity of water entering the UV unit(s) when it is in service must not exceed 5.0 NTU for the duration of any consecutive 15-minute period.	Monitoring CP: 1 Day RP: 1 Month	This proposed change clarifies that turbidity of water entering a UV unit needs to be monitored the UV unit when it is in service. We propose increasing reporting frequency from annually to monthly. This responds to feedback we have received from some suppliers that reporting more frequently would reduce the burden of annual reporting by spreading analysis and reporting throughout the year.	N/A	Reduction in annual reporting requirements.
T3.19	For UV units certified to Ultraviolet Disinfection Guidance Manual (USEPA 2006b) monitored UVI, UVT and flow must be used to calculate dose.	Assurance CP: 1 Year RP: 1 Year	T3.BV.U7	UV units validated to USEPA UVDGM must calculate dose using— (a) UVI and flow, if set-point dose approach is used; or (b) UVI, flow, and UVT, if calculated dose approach used.	Non-reporting CP: N/A RP: N/A	USEPA UVDGM has two approaches to validation, the UV Intensity Setpoint Approach and the Calculated Dose Approach. This proposed rule: - sets out requirements for calculating dose for UV units validated to USEPA UVDGM - clarifies that UVT only needs to be monitored if a supplier is using a calculated dose approach - changes this rule from an assurance rule to a non-reporting. Previously, UVT was monitored separately and needed to meet a set limit. UV units now read UVT and adjust dose accordingly, so monitoring of UVT itself is not required if the appropriate UV dose is being applied. Validation means that the necessary dose will be applied. We plan to develop guidance on UV treatment to help suppliers understand their requirements.	N/A	N/A
T3.20	For UV units certified to DVGW Technical Standard W294 (DVGW 2006) or ÖNORM M 5873-1: 2020 01 01 ⁴⁶ monitored flow must be used for UVI control or the reactor run at full	Assurance CP: 1 Year RP: 1 Year	T3.BV.U8	UV units validated to DVGW; ÖNORM; or DIN must— (a) use monitored flow for UVI control; or	Non-reporting CP: N/A RP: N/A	This proposed rule: - sets out UVI and UVT requirements for UV units validated to DVGW, ÖNORM; or DIN - add the DIN standard as a possible option for suppliers	N/A	N/A

	power. UVI and UVT must be more than the validated value for the respective flow.			(b) be run at full power; and (c) UVI and UVT must be more than the validated value for the respective flow.		changes this rule from an assurance rule to a non-reporting rule. We propose including a definition of designated UV validated standard in the interpretation section of the Rules.		
T3.21	For UV units certified to NSF/ANSI 55 Class A (NSF, ANSI n.d.); (for populations of up to 5000) – 3-log a fault must be generated when any parameter exceeds the certified value.	Assurance CP: 1 Year RP: 1 Year	T3.BV.U9	UV units validated to NSF/ANSI 55 – Class A must generate a fault when any parameter exceeds the validated value.	Non-reporting rule CP: N/A RP: N/A	This existing rule has minor wording changes which is intended to align with the new protozoa rule that has been created. We also propose changing this rule from an assurance rule to a non-reporting rule.	N/A	N/A
Table 22	UVI sensor checking and standardisation: Duty UVI sensors must be checked at least monthly against the reference sensor. If the difference between the two readings exceeds the manufacturer’s specified limits, then the Duty UVI sensor must be replaced. The reference UVI sensor must be standardised at least annually in accordance with Ultraviolet Disinfection Guidance Manual (USEPA 2006b) or other traceable procedure. Alternatively, after 12 months the drinking water supplier can use the reference sensor as a duty sensor and purchase a new standardised sensor for use as a reference sensor.	Monitoring CP: 1 Month RP: 1 Year	T3.BV.U10	UVI sensors must meet the following requirements: (a) duty UVI sensors must be— (i) checked at least every month against the reference sensor; and (ii) replaced if the difference between the duty and reference readings exceeds the manufacturer’s specified limits: (b) a reference UVI sensor must— (i) have been purchased in the last 12 months; or (ii) be standardised at least annually in accordance with the USEPA UVDGM or other traceable procedure: (c) after 12 months of use, the reference sensor can be used as a duty sensor and a new standardised sensor must be used as a reference sensor.	Assurance CP: 1 Year RP: 1 Year	This proposed rule rewrites a table into a rule to make compliance easier. We also propose changing this rule from a monitoring rule to an assurance rule.	N/A	N/A
T3.20 Footnote 46	Or UV reactors certified to öNORM M5873 (Österreichisches Normungsinstitut 2001)	N/A	N/A	Removed.	N/A	Consolidated into TB.BV.U1.	N/A	N/A
Table 32 Footnote 56	These requirements do not apply to UV disinfection systems that automatically adjust the UV dose as the UVT of the water flowing through the reactor varies.	N/A	N/A	Removed	N/A	Consolidated into TB.BV.U1.	N/A	N/A