



## Instructions for Form UV-CAL

### General Instructions

This form is to be used to document the calibration of UV sensors, transmittance analyzers and flow meters for validated UV reactors that are used for compliance with 310 CMR 22.00. The form is to be submitted along with either form UV-ISA or UV-CDA.

The frequency and procedures for equipment calibration is described on the respective forms.

The form can be used for calibration of instruments for two UV reactors. Facilities with more than two reactors will require additional forms. The completed form must be signed and submitted to the appropriate MassDEP region by the 10<sup>th</sup> of the following month. **Note: Unless otherwise required by MassDEP, calibration forms must be submitted for at least the first year that the UV reactor(s) went on-line. After one year, the completed forms do not need to be submitted to MassDEP. However, completed reports must be kept on site and made available to MassDEP upon request.**

### Detailed Instructions

#### II. Duty Sensor Calibration

Reactor ID No.:							
Duty Sensor ID No.	Ref. Sensor ID No.	Calibration Date	Previous Cal. Date	Duty Sensor (mJ/cm <sup>2</sup> )	Ref. Sensor (mJ/cm <sup>2</sup> )	Calibration Ratio (Duty/Ref)	Is Ratio ≤ 1.2 (Y/N)

*Sensors must be calibrated at least monthly using a reference sensor that is calibrated at least yearly. The form requires that each reactor, duty sensor and reference sensor have unique IDs. The most recent, and previous, duty sensor calibration dates must be reported, along with the most recent duty & reference sensor readings (mJ/cm<sup>2</sup>). The duty sensor to reference sensor ratio is reported and must be ≤ 1.2. If the sensor is out of calibration, the reactor must be taken off line or a calibration factor used and indicated on form UV-ISA or UV-CDA.*

#### III. Transmittance Analyzer Calibration

Is reactor using "Calculated Dose Approach" (CDA) or "Intensity Setpoint Approach" (ISA)?:						
UVT Analyzer ID No.	Reactor ID No.	Cal. Date	Previous Cal. Date	On-Line UVT (%) [A]	Grab Sample UVT (%) [B]	Is [A] – [B] ≤ 2% UVT (Y/N)

*Transmittance analyzers must be calibrated at least weekly for reactors that operate using the 'calculated dose approach' (Form UV-CDA), and at least yearly for reactors that operate using the 'intensity setpoint approach' (form UV-ISA). The form requires that each analyzer and reactor have unique IDs. The most recent, and previous, analyzer calibration dates must be reported along with the % UV transmittance of both the on-line analyzer and the benchtop spectrophotometer. The difference between the two readings must be ≤ 2% for the UV reactor to remain on-line.*

#### IV. Reactor Flow Meter Calibration

Reactor ID No.:	Flow Meter ID No.:	Calibration Date:	Prev. Cal. Date:
Reactor ID No.:	Flow Meter ID No.:	Calibration Date:	Prev. Cal. Date:
Comments:			

*Each reactor's flow meter must be calibrated at least yearly. The form requires that each reactor and flow meter have a unique ID. The most recent, and previous, meter calibration dates must be reported.*