Methodology Submission

Removal of atmospheric nitrous oxide (N_2O) using Photocatalytic Technology

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1. Methodology Overview

1.1 Scope

The proposed methodology is applicable to projects that utilise photocatalysts to breakdown nitrous oxide (N_2O) from the atmosphere. The photocatalysts can be deployed by placing on any eligible surface i.e., by spraying or embedding into the surface. Any project that enables N_2O breakdown using photocatalysts may be eligible to adopt this methodology.

1.2 Motivation

N_2O is a very potent greenhouse gas (GHG) having global warming potential 265 times that of Carbon dioxide (CO_2) and is responsible for rising global temperatures (United Nations, 2022). The photocatalytic technology for N_2O removal developed by Crop Intellect Ltd is called R-Leaf (UK) and may be deployed on any surface, especially on leaf canopies in crop production or agriculture. Agriculture is a major contributor of N_2O emissions generated from synthetic nitrogen fertilisers usage applied to soil which is a global farm practice. According to DEFRA National statistics (2022), Chapter 11: Environment (Updated 27 July 2022), Agriculture contributed to 69% of overall UK N_2O emissions in 2020 which amounts to 14.5 million tCO_2eq. The use of photocatalysts to remove atmospheric N_2O by using daylight provides a unique opportunity to reduce the impact of N_2O towards climate change at scale.

1.3 Outline

The methodology is applicable to project activities aiming at removing N_2O from the air via deployment of photocatalysts placed on eligible surfaces such as crop leaves. The methodology offers flexibility to project developers to use photocatalytic technologies removing N_2O into their project design, including choosing a project location with the aim to contract landowners or farmers with collective land availability of over 10,000 hectares (developed world). They will apply the photocatalyst in their practices i.e., spraying crops, that removes N_2O from the atmosphere. Measuring the impact is performed through monitoring of the parameters that influence the efficiency/efficacy of the photocatalyst. The photocatalytic performance and capacity have been determined through lab and field trials, but the real-world parameters specific to the region where the project is set up may affect the performance, therefore the efficiency of the photocatalyst shall be adjusted accordingly to quantify N_2O removal in terms of tCO_2eq in each defined project region. The real-world parameters required to be monitored and the equations to calculate the removal of N_2O in terms of tCO_2eq are defined and described in the methodology.

2. Applicability and Conditions

The methodology is applicable where carbon equivalents (N_2O) within a defined project boundary would remain unchanged over time in the absence of the project activity. Where applicable, considered greenhouse gasses emitted within the project boundary are: N_2O and CO_2. The co-benefits considered to assess ecosystem health depend on the project site and individual project conditions.

2.1 Eligibility

Geographical restriction

This methodology can be applied globally on any land-based projects.

Technological requirements

This methodology can only be applied to projects that have access to photocatalytic technology able to remove N_2O and equipment mentioned throughout the document for deploying the material such as spraying equipment, equipment to monitoring the regional condition and measure the removal of N_2O.

Type of surface for photocatalyst application

This methodology can be applied for any projects where photocatalyst for N_2O removal can be sprayed or spread on a surface. If the surface is indoors or permanently shaded area, a light source needs to be provided.

The most suitable surface for the photocatalyst application would be the canopy of leaves either in a crop farm or any other planted area. In this case, the type of crop selected is required to maintain a canopy for at least 10 weeks. Application of agrochemical input on a plant canopy by spraying is standard practice in crop production; the photocatalyst for N_2O removal can be mixed with the agrochemical inputs (i.e. R-Leaf) and therefore no further activity than the farm standard would be required.

If spraying or spreading of the materials is not a standard practice for the surface selected for the photocatalyst for N_2O removal, then the excess emissions due to the spraying or spreading activity are not part of the baseline and need to be accounted as a part of project activity emissions. Similarly, if the artificial light source is provided, the emissions from electricity or other energy sources and the material shall be a part of the project's activity emissions.

2.2 Additionality

The projects adopting this methodology to generate certified carbon credits must demonstrate additionality. Any project can be determined as additional based on results of the Barrier Analysis and Common Practice analysis.

Barrier Analysis

If barriers exist in the execution of the project activities and the project cannot be implemented without the resulting benefits of carbon certification, then the project can be considered additional. The Barrier Analysis must be carried out by the Project Developer. The said barriers must be mentioned and described in the project description document. The possible barriers could be singular or multiple, and some examples of the barriers are given below:

- Investment barriers (the technology/product to be used in the project is expensive due to the price of the photocatalyst and the required margin of the distribution network; standard inputs are more affordable and therefore an easy choice)
- Knowledge barriers (accepting the use of a new input in standard practices requires confidence and knowledge on the appropriate use and expected outcomes; the knowledge required to execute the methodology; special training for each crop within a farm)
- Institutional barriers (navigating through the regional policies, regulations and legislations require further work compared to an existing product/technology)
- Technological barriers (equipment use for implementing the technology i.e., accessing the canopy of trees)
- Regulatory barriers (where for any regulatory specificity the application of the material is prohibited without registration or monitoring)
- Barriers due to regional traditions (regional traditional practices are prohibiting the use of the technology i.e., protected crops (in greenhouses) or not sprayed)

- Barriers evolving through existing land management practices (regular canopy removal i.e., professionally managed turf)
- Barriers through ecological circumstances (enabling utilisation of areas where spraying is not common practice)

The barriers described above restrict the adoption of the technology however through the benefits of the verified carbon credits these barriers can be overcome and therefore the technology can be deployed. The A/R Methodological tool *"Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities"* provides a detailed list of potential barriers (CDM Executive Board, 2007).

Common Practice Analysis

The project is considered additional only if the project activities are not common practice in the region where the project is established. The Project Developer must carry out the Common Practice analysis. It is suggested that the common practice analysis be carried out as per Step 4 of the CDM A/R Methodological tool *"Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities"* (CDM Executive Board, 2007). Any deviation from this method must be acknowledged and documented.

2.3 Principles

It is suggested that the principles described in ISO 14064-2:2019 (2019) should be followed during the implementation of this Methodology. The principals serve as a guiding protocol for implementation of the methodology in its entirety. These principles are fundamental in ensuring that all the GHG related information is true.

Relevance

Selection of the GHG sources, sinks and reservoirs (SSRs), data and methodologies appropriate to the needs of the intended user.

Completeness

Inclusion of all relevant GHG emissions and removals, along with all relevant information to support criteria and procedures.

Consistency

Enabling meaningful comparisons in GHG-related information.

Accuracy

Reducing bias and uncertainties as far as it is practically possible.

Transparency

Discloser of sufficient and appropriate GHG-related information to allow intended users to make decisions with reasonable confidence.

Conservativeness

Use of conservative assumptions, values, and procedures to ensure that GHG emission reductions or removal enhancements are not over-estimated.

2.4 Traceability

To effectively remove N_2O from the atmosphere and achieve the associated environmental benefits that result in carbon credits being issued, it is crucial to spray the photocatalyst for N_2O removal, such as R-Leaf, over the surfaces that enable the photocatalytic reaction to take place. Therefore, it is important to apply the photocatalyst in the field or project area as specified in the methodology. A QR code system will be utilised that tracks the movement of the material from production through the supply chain to individual farmers.

Farmers participating in the project will be assigned a unique code that is linked to their specific order. Each pallet/batch of R-Leaf from that order will carry a QR code linked to the farmer's code, the farmer will need to scan the QR code that will confirm that the farmer has received the material assigned to them. The QR code will also be used to track the movement of R-Leaf through the supply chain along with the delivery information. The data collected from the QR code will be linked to a central database (complying with region's GDPR), which will include information such as the farmer's name, address, order details, crop to be sprayed, area, equipment, timing and field location. This procedure will be a requirement for every landowner/participant being part of a project. They will have the choice of providing the details online, on an application (i.e., mobile app) and by sending a paper form completed.

As an additional security measure to deter fraudulent claims, for instance, product being re-sold, used at lower rate, on a different crop or at different dose, a DNA-based tracing technology will be incorporated into the product. The DNA-based traceability method involves the addition of a unique DNA sequence to the product contents, this would be a plant-based DNA of a different type of farmed crop it is applied to. This allows for easy and reliable confirmation of R-Leaf application during the project. A subsample check will be performed to ensure the product has been used within each project. The added DNA sequence will be a random, non-coding sequence that poses no risk of gene transfer or harmful contamination to food or the environment. To confirm the presence of R-Leaf, a PCR test will be performed on the leaf samples collected from the farms using primers specific to the added DNA sequence, which will confirm the presence of R-Leaf.

Overall, the use of QR codes and DNA markers offers a safe and reliable option for tracing R-Leaf application. This method can be easily implemented to ensure product traceability and confirm the application of R-Leaf as specified by the methodology.

2.5 Project Description and Quality Management

The project description document is prepared for every project by the Project Developer. This document confirms the eligibility of the project as per methodology requirements and establishes consistency with regards to verification and validation. This document describes the specifications of the project and also serves as the basis or third-party verification and validation.

The project description document must include the data quality management approach with appropriate clarifications. This should detail the quality assurance and quality control (QA/QC) protocols for ensuring the following factors:

- Accurate data collection
- Completeness
- Independent checks on analysis results
- Trackable data archiving methods, including any anticipated updates to electronic files
- That data is archived electronically and kept for 5 years after the end of the last project crediting period
- Data protection
- A transparent uncertainty assessment
- A statement on how version control (of applied models, methodologies, tools, etc.) is handled

2.6 Project validation

Third-party validation shall be carried out for all projects at the project start, or at the time of the first project verification. The third-party validator checks the compliance of the project specifications with the project description document along with the correct implementation according to this methodology. Relevant project data and documentation must be provided for the desk-based review. A validation report shall document the findings.

2.7 Verification

Third-party verification of a project is carried out after project implementation has commenced and before the first tCO_2eq reduction or removal credits are issued. The following aspects shall be assessed during verification:

- The extent to which project activities have been implemented in accordance with the project description
- The extent to which monitoring procedures have been implemented in conformance with the monitoring plan
- The reliability of the evidence for the determination of tCO_2eq reductions and removals, as presented in the monitoring report
- The correct application of the formulae and methods set out in the project description for calculating baseline emission and project emissions
- The accuracy of the calculated tCO_2eq emission reductions and removals in accordance with the project description and applied methodology

3. Project Boundary

3.1 Spatial Boundary

The spatial extent of the project boundary encompasses the land (or farmland) included in the project. All the surfaces, including crops, sprayed with R-Leaf or similar photocatalyst are included in the project. As the products of N_2O breakdown are N_2 and O_2, they are not required to be monitored. As a field is an open system, atmospheric N_2O will replace degraded N_2O, particularly near the boundaries of the monitored area. This can be limited by only measuring N_2O concentrations downwind of the project site, minimising the effect of atmospheric mixing by ensuring the air blown into the sensors comes from the project site. An extrapolation model acceptable to the scientific community will be utilised to calculate the N_2O removal. Furthermore, a specially designed chamber will be implemented to assist measurements and confirm removal. The chamber has an entry point for air present in the field (ambient) and is not restricting any light spectrum. The chamber is connected to appropriate equipment for live N_2O analysis allowing to measure N_2O removal in situ. This data will assist to optimise the extrapolation model for the specific project where measurements are taken in a number of locations deemed appropriate to reflect the project boundaries.

The standard farming practices will be assessed allowing to define the baseline for each project. Then establish the evaluation of the photocatalyst application and its impact in N_2O removal.

The greenhouse gases included in or excluded from the project boundary are shown in Table 1 below.

Table 1. *Emissions sources or sinks included in or excluded from the project boundary*

Scenario	Source / Sink	Gas	Included	Justification/Explanation

Baseline scenario	Atmospheric N_2O generated from agriculture activities (or other N_2O emissions that end up at site) is a source in the baseline scenario	CO_2	No	Not significant through this activity
		CH_4	No	Not significant through this activity
		N_2O	Yes	Important source of emissions
	Farming activities is a source of direct or indirect CO_2 emissions	CO_2	Yes	Important source of emissions
		CH_4	No	Not significant through this activity
		N_2O	No	Not significant through this activity
Project scenario	R-Leaf application is a N_2O sink in the project scenario	CO_2	No	Not significant through this activity
		CH_4	No	Not significant through this activity
		N_2O	Yes	Important sink for emissions
	Manufacturing, processing, packaging, storage, and delivery of the photocatalyst is a source of direct or indirect CO_2 emissions	CO_2	Yes	Important source of emissions
		CH_4	No	Not significant through this activity
		N_2O	No	Not significant through this activity
	Farming activities is a source of direct or indirect CO_2 emissions (this won't change from baseline as the photocatalyst application does not increase farming activities)	CO_2	Yes	Important source of emissions
		CH_4	No	Not significant through this activity
		N_2O	No	Not significant through this activity

3.2 Temporal boundaries

The time frame of the project is specified before the commencement of the monitoring, and it is included in the project description document. The document includes the start and end date of the project activity, the start and end date of the crediting period and reporting milestones, including set reporting periods.

The following guidelines define the reporting period and establishment of the time limits:

- The project length shall be generally 10 years.
- The project description is detailed at the beginning of the project period.

- The necessary data points/parameters shall be monitored at time periods described by the methodology during the project length.
- The project developer shall record data on activities, change in practices and any other relevant details to the specific project area surface along with tCO_2eq emission balance at the end of each monitoring period.
- Reports shall be prepared regularly based on the monitored data. The number of planned reports shall be documented in the project description.
- The number of carbon credits are calculated based on monitored data, after each reporting round. A document shall be created which describes the progress of the project in a traceable scoring procedure and contains the number of credits assessed.
- Modifications can be made in the reporting time frame for justified reasons, for instance, extreme weather events. Such modifications shall be described and documented.
- The reporting periods shall not be shorter than 6 months.

4. Baseline Emissions

The project baseline activity will be demonstrated using the latest version of the "Combined tool to identify the baseline scenario and demonstrate additionality" that is available on the UNFCCC website.

Continuation of pre-project N_2O emissions and no means of removing that N_2O is the most plausible baseline scenario. Baseline conditions will include monitoring/measuring the background N_2O concentration before the project activities. Baseline will also include the CO_2 emissions from farming activities. The parcel of land on which the baseline crop is grown must be the same parcel of land on which the project crop is grown.

5. Quantification of GHG Emission Removals

It is essential to determine the amount of N_2O removed by the application of the photocatalyst to determine the GHG removals in terms of tCO2eq. As the end products of the photocatalytic reaction (i.e., N_2 and O_2) are not stored but released into the atmosphere, the GHG removal cannot be determined through soil or crop sample analysis as done by other carbon sequestration methodologies, which sets this methodology apart. Hence, the quantification of N_2O removal is done by using the photocatalysis reaction rate and the parameters that affect it.

5.1 N_2O Breakdown Equation

A highly precise equation is dependent on the interaction of many factors, and the ability to measure them and monitor them. Focusing on the most significant and relevant variables in an equation can be used to account for the reaction rates utilising existing knowledge and acceptable assumptions.

5.1.1 Assumptions Made

When working with the proposed predictive equation, several key assumptions must be made to ensure accurate results.

- The only variable changing is the one being considered. If multiple variables are changing simultaneously, the interaction of these changes may affect reaction rate differently to what is expected.
- The changed variable is limiting reaction rate. As certain variables increase, their relative effect on reaction rate decreases. For example, a reaction with high concentrations of reactant will not benefit from extra reactant being added.
- Any changes to the baseline N_2O concentration are caused by the photocatalyst. For example, if N_2O is lost to any reason, then this will artificially inflate reaction rates.

5.1.2 Equations

Photocatalyst Efficiency

Photocatalyst loses efficiency over time as impurities build up, and rainfall reduces the photocatalyst material from the surface. R-Leaf loses a mean 0.08% of its catalytic efficiency every 24 hours. A mean monthly rainfall of 55.7 mm has been found to remove 7.5% of R-Leaf every 28 days, or 0.27% every 24 hours. The equation below accounts for this loss of efficiency:

$$E = 1 - \frac{0.0027 \times \frac{W}{55.7} + 0.0008 \times F}{2} \qquad \text{[Eq. 1]}$$

Where:

E The mean efficiency of the photocatalyst compared to freshly applied photocatalyst. A unitless value between 0 and 1. If a value of less than 0 is obtained, then the catalyst has ceased to function.

F Total time in days R-Leaf is performing photocatalysis, assuming mean 10 hours of daylight per day.

W Mean monthly rainfall during the experimental period (mm)

Total Reaction Time

Photocatalysts rely on the presence of light. The amount of N_2O that can break down is therefore dependent on the duration for which it can catalyse the reaction. For single day experiments or experiments undertaken with artificial lighting, T is equal to the amount of time the photocatalyst is lit. For longer term experiments using natural light, total reaction time can be calculated as follows:

$$T = t * F \qquad \text{[Eq. 2]}$$

Where:

T Total reaction time (days)

t Mean irradiation time of light per day, will be a decimal (days)

F Number of days irradiation occurred (days)

Light Intensity

The rate of reaction of photocatalysts depends on the amount/intensity of available light to progress the necessary reactions. With higher light intensity, there is higher absorption of light on the surface of the photocatalysts, which produces higher number of hydroxyl radicals (OH•) (Hufschmidt *et al.*, 2002). The relationship between light intensity and reaction rate is linear, assuming light intensity is limiting reaction rate (Dillert *et al.*, 2013). The following equation is therefore true for the relationship between light intensity and reaction rate:

$$R = M \times L \qquad \text{[Eq. 3]}$$

Where:

R Reaction rate (mg/m^2 of experimental area/day of N_2O reacted)

M Gradient factor (unitless) that determines the relationship between light intensity and reaction rate, depends on the conditions of other variables

L Mean visible light intensity during the periods of irradiance (W/m^2)

Relative Humidity

Water is used as an electron donor and acceptor during the photocatalytic reaction to break down N_2O. The reaction of the photocatalyst holes with water molecules creates hydroxyl radicals (OH•), these hydroxyl radicals facilitate decomposition of N_2O into N_2 and O_2 (Zhang *et al.*, 2022). However, even at 0% relative humidity, reaction rates are about 15% of the maximum (Kudo *et al.*, 1992). The reaction value at 0% relative humidity therefore depends on the maximum reaction rate, which depends on other variables. It can be found in lab environments by varying relative humidity of the gas mixture inserted into the reaction chamber. The equation for reaction rate depending on relative humidity is therefore described below:

$$R = M \times H + (cR) \qquad \text{[Eq. 4]}$$

Where:

R Reaction rate (mg/day of N_2O reacted)

M Gradient factor (unitless) that determines the relationship between relative humidity and reaction rate, depends on the conditions of other variables

H Relative humidity of the atmosphere (%)

cR Reaction rate when H = 0 (mg/day).

N_2O Concentration

As the amount of N_2O present in the atmosphere increases, the chance of a successful catalytic breakdown also increases. Due to the constant atmospheric mixing in a field-based environment, it can be assumed that the concentration of N_2O remains constant, as gas that is broken down is quicky replaced. This means that the volume of air that can react can be ignored, as is effectively infinite. Therefore, as [N_2O] increases, so does the rate of reaction which gives the equation below:

$$R = M \times [N_2O] \qquad \text{[Eq. 5]}$$

Where:

R Reaction rate (mg/day of N_2O reacted)

M Gradient factor (unitless) that determines the relationship between N_2O concentration and reaction rate, depends on the conditions of other variables

[N_2O] Ambient concentration of N_2O (mg/l of air)

Reaction Rate

The overall reaction rate depends on several of the above equations, as well as the amount of photocatalyst available to catalyse the reaction per unit area. The amount of photocatalyst is proportional to the rate of reaction. This gives the equation below to determine rate of reaction:

$$R = (\left(M_1 \times [N2O]\right) \times \left(M_2 H + cR\right) \times (M_3 \times L) \times \left(M_4 \times C\right)) \times E \qquad \text{[Eq. 6]}$$

Where:

R Reaction rate (mg/m^2 of experimental area/day of N_2O reacted)

M_x Gradient factor (unitless) that determines the relationship between a variable and reaction rate, depends on the conditions of other variables

[N_2O] Ambient concentration of N_2O (mg/l of air)

H Relative humidity (%)

cR Reaction rate when H = 0 (mg/day)

L Mean visible light intensity during the periods of irradiance (W/m^2)

C Mass of R-Leaf per unit area (mg/m^2)

E Efficiency over R-Leaf during the experiment (unitless)

Amount of N_2O Degraded

Once the overall reaction rate has been obtained, the amount of N_2O degraded can be calculated by taking account of the total reaction time, as shown in the equation below:

$$N = A \times R \times T \qquad \text{[Eq. 7]}$$

Where:

N Total mass of N_2O removed (mg)

A Total deployed area (m^2)

R Reaction rate (mg/day of N_2O reacted)

T Total time reaction occurred during the experiment (days)

Amount of N_2O removed in terms of tCO_2eq

The global warming potential of N_2O is 265 times that of CO_2 (United Nations, 2022). Hence, the tons of N_2O removed can be converted to tCO_2eq by multiplying it with 265.

$$C = (N/10^9)\times 265 \quad \text{[Eq. 8]}$$

Where:

C Total mass of N_2O removed (tCO_2eq)

N Total mass of N_2O removed (mg)

6. Project Activity Emissions

The Project Activity Emissions are the emissions that result due to the operations required to implement, run, monitor, and conclude the project. As these activities put the GHGs into the atmosphere which would not have occurred in the absence of the project, they need to be accounted for and deducted from GHG removal claims by the project.

As mentioned earlier, the implementation of the project in crop farming will not affect the standard farming practices as spraying is already an operation performed regularly. Therefore, the emissions from the standard agricultural practices are not part of the project activities, and hence will not be deducted from the GHG removal claims.

The activities resulting from procurement of raw materials, manufacturing processes, packaging and transportation for the production and supply of the photocatalyst for N_2O removal will generate emissions. These emissions have to be calculated by full Life Cycle Analysis (LCA) of the photocatalyst, which would then be deducted from the GHG removal claims by the project.

The emissions from other project activities like monitoring and measurements will be considered and included and removed from the total GHG removal claim.

Therefore, the Net GHG removal claimed by the project will be the Project Activity Emissions deducted from the tCO_2eq N_2O removed.

7. Monitoring

Table 2 details the parameters that will be monitored during the project.

Table 2. *Parameters monitored throughout each project, a) rainfall, b) light irradiation/day, c) light intensity, d) relative humidity, e) ambient N_2O.*

(a)

Data / Parameter	Mean monthly rainfall (W)
Data unit	mm
Description	Refers to monthly rainfall during the experimental period
Equations	Eq. 1
Source of data	Meteorological station readings/weather reports
Justification of choice of data or description of measurement methods and procedures applied	This parameter is important to determine efficiency of the photocatalyst during the project duration. The project developer will be responsible to gather this data. The data should be noted daily.
Purpose of Data	Quantification of GHG emission removal
Comments	N/A

(b)	
Data / Parameter	Mean irradiation time of light per day, will be a decimal (t)
Data unit	days
Description	Refers to amount of daylight available each day
Equations	Eq. 2
Source of data	Meteorological station readings/weather reports
Justification of choice of data or description of measurement methods and procedures applied	This parameter is important to determine the total reaction time of the photocatalyst. The project developer will be responsible to gather this data. The data should be noted monthly.
Purpose of Data	Quantification of GHG emission removal
Comments	N/A

(c)

Data / Parameter	Mean visible light intensity (L)
Data unit	W/m^2
Description	Refers to visible light intensity during the periods of irradiance
Equations	Eq. 3 and 6
Source of data	Meteorological station readings/weather reports
Justification of choice of data or description of measurement methods and procedures applied	This parameter is important to determine the reaction rate of the photocatalyst. The project developer will be responsible to gather this data. The data should be noted daily.
Purpose of Data	Quantification of GHG emission removal
Comments	N/A

(d)	
Data / Parameter	Relative humidity of the atmosphere (H)
Data unit	%
Description	Refers to the humidity in the atmosphere at project location for the duration of the project.
Equations	Eq. 4 and 6
Source of data	Meteorological station readings/weather reports
Justification of choice of data or description of measurement methods and procedures applied	This parameter is important to determine the reaction rate of the photocatalyst. The project developer will be responsible to gather this data. The data should be noted daily.
Purpose of Data	Quantification of GHG emission removal
Comments	N/A

(e)	
Data / Parameter	Ambient concentration of N_2O ([N_2O])
Data unit	mg/l of air
Description	Refers to the ambient N_2O concentration in the air for the at project location for the duration of the project.
Equations	Eq. 5 and 6
Source of data	Historic or measured data using N2O monitoring equipment or GC analysis, measured once.
Justification of choice of data or description of measurement methods and procedures applied	This parameter is important to determine the reaction rate of the photocatalyst. The project developer will be responsible to gather this data. The data should be noted at the start of the project.
Purpose of Data	Quantification of GHG emission removal
Comments	N/A

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