ACR Project Plan

Foam Blowing Agent Projects

001E, 001F, 001G, 001H, 001I, 001J

foam supplies, inc.

Dentons US LLP

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A.
PROJECTS OVERVIEW

A1. PROJECT TITLES

FBA Projects 001E, 001F, 001G, 001H, 001I, 001J,

A2. PROJECT TYPE

Industrial Process Emissions

A3. PROOF OF PROJECT ELIGIBILITY

These Projects are eligible under the "Emission Reduction Measurement and Monitoring Methodology for the Transition to Advanced Formulation Blowing Agents in Foam Manufacturing and Use", Version 2.0. Certain project eligibility requirements are specified within the Methodology and others are specified within the ACR Standard, Version 5.1.

The Projects covered under this Project Plan are for Projects operating and reporting for vintage years 2009, 2010, 2011, 2012, 2013 and 2014.

Table 1 – Project Eligibility Criteria

Criterion	ACR Standard or Methodology Specific Requirement	Proof of Project Eligibility
Geographic location	The Project must be located in North America	Each Project aggregates foam BA transition activities from several foam manufacturing facilities ("Facilities") located across North America.

Criterion	ACR Standard or Methodology Specific Requirement	Proof of Project Eligibility
Eligible Foam Application	The Project must be in one of the following foam applications: 1. XPS boardstock 2. Two-component rigid PU spray foam 3. Rigid PU injected foam a. Marine flotation or buoyancy b. HVAC and air handling systems c. Refrigerated transport d. Small retail food refrigeration e. Large retail food refrigeration f. Industrial refrigeration systems g. Garage and entry doors 4. Rigid PUF residential refrigerators and freezers	The Projects are in the included under the following applications and sub-applications. - Small retail food refrigeration - Large retail food refrigeration

Criterion	ACR Standard or Methodology Specific Requirement	Proof of Project Eligibility
Start Date	Date for all projects other than AFOLU as the date on which the project began to reduce GHG emissions against its baseline. Non-AFOLU Projects must be validated within 2 years of the project Start Date. One exception applies to these timeframes: - Projects using a newly approved methodology or a newly approved modification that expands the eligibility of a previously published methodology may submit it for listing with ACR within 10 years of the project Start Date. - However, the date of listing submittal must be within 6 months of the methodology publication date, and the project must then be validated within 2 years of the listing. - The Start Date and the start of the Minimum Project Term shall be the same. - The Start Date and the start of the first Crediting Period are generally the same, unless otherwise allowable in the relevant methodology.	The Start Dates for each Project listed herein are January 1, 2009, January 1, 2010, January 1, 2011, January 1, 2012, January 1, 2013 and January 1, 2014. These Projects are being developed under version 2.0 of the FBA Methodology which was published in April 2018.

Criterion	ACR Standard or Methodology Specific Requirement	Proof of Project Eligibility
Minimum Baseline BA Usage	Other than for projects which use a Default BA, records of the Baseline BA used in the Project must show a minimum of 2 years of usage of a BA with a GWP >30 prior to the Project Activity.	For those facilities where a Default BA is not the Baseline BA, the Project Proponent maintains the records of the Baseline BA in the case where they were also the Baseline BA supplier. Documentation from the Facility is provided where Project Proponent was not the Baseline BA supplier.
Default BA	For foam applications required to transition to a different BA as the result of a regulation, the Default BA will be the BA that the project developer would have used instead of the Eligible BA. In these scenarios, the Default BA becomes the Baseline BA. The GWP of a Default BA may be used if it can be demonstrated that the Default BA is the alternative most likely to be used upon transition. Project proponents shall provide documentation, which shall include financial, market and/or technical analyses, to justify the use of the Default BA.	Some of the Facilities use a Default BA.
Minimum Project Term	The Minimum Project Term for specific project types is specified in the relevant ACR sector standard and/or methodology. Project types with no risk of reversal subsequent to crediting have no required Minimum Project Term.	There is no risk of reversal for this project type.

Criterion	ACR Standard or Methodology Specific Requirement	Proof of Project Eligibility
Crediting Period	The Crediting Period for non-AFOLU projects shall be ten (10) years.	This is a non-AFOLU project, therefore the Crediting Period is 10 years. The Crediting Periods are from 1/1/09 – 12/31/18; 1/1/10 – 12/31/19; 1/1/11 – 12/31/20; 1/1/12 --12/31/21; 1/1/13--12/31/22; 1/1/14--12/31/23.
Real	GHG reductions and removals shall exist prior to ERT issuance. ACR will not forward issue nor forward register a projected stream of future offsets.	GHG reductions occur from the replacement of Baseline BA in the manufacturing process during the Reporting Period. The majority of the emission reductions from the Project occur during the manufacturing process. The "use" emissions occur throughout the 9 years after the Reporting Period. ACR issues the full 10 years of emission reductions upon final Project Verification.
Emission or Removal Origin	Project Proponent shall own, have control, or document effective control over the GHG sources/sinks from which the emissions reductions or removals originate. If the Project Proponent does not own or control the GHG sources or sinks, the Proponent shall document that effective control exists over the GHG sources and/or sinks from which the reductions/removals originate.	Foam Supplies (FSI) is the manufacturer and supplier of BAs to foam manufacturing companies. In each Project FSI supplies the Project BA (Ecomate) to the foam manufacturing Facilities, manages the equipment modifications for the transition from Baseline BA to Project BA, and provides continued service and maintenance for the associated foam manufacturing equipment. FSI also manufactured and supplied the Baseline BA for the some of the Facilities.

Criterion	ACR Standard or Methodology Specific Requirement	Proof of Project Eligibility
Offset Title	Project Proponent shall provide documentation and attestation of undisputed title to all offsets prior to registration, including chain of custody documentation if offsets have ever been sold in the past. Title to offsets shall be clear, unique, and uncontested.	FSI holds and retains title to all carbon offsets created by these Facilities through contractual agreements with each Facility. The Facilities have relinquished any claim to any emission credits or other environmental attributes associated with each Project and have assigned such rights to FSI.
Land Title	For U.S. projects, Project Proponent shall provide documentation of clear, unique, and uncontested land title. For international projects, Proponent shall provide documentation and/or attestation of land title; ACR may require a legal review by an expert in local law. Land title may be held by a person or entity other than the Project Proponent, provided the Project Proponent has clear, unique, and uncontested offsets title.	Land title is not applicable for this project type.

Criterion	ACR Standard or Methodology Specific Requirement	Proof of Project Eligibility
Additional	The Methodology requires Projects to pass the Regulatory Surplus Test and meet the ACR Practice-Based Performance Standard. <u>Practice-Based Performance Standard:</u> The Methodology has already completed a market adoption analysis. Therefore, project proponents must only show that their project falls into one of the Eligible Foam Applications found in Table 2 of the Methodology to pass the Practice-Based Performance Standard. <u>Regulatory Surplus Test:</u> The project proponent must demonstrate that Project maintains compliance with all laws, regulations, and other legally binding mandates directly related to project activities. To meet this requirement, project proponents will submit a written and signed attestation to the verifier acknowledging the compliance status of the project during each verification interval.	Each Project passes the ACR-approved Practice-Based Performance Standard and the Regulatory Surplus Test. <u>Practice-Based Performance Standard:</u> The Project falls into the Eligible Foam Applications in Table 2 of the Methodology. <u>Regulatory Surplus Test:</u> The Project passes the Regulatory Surplus test as there are no federal, state, or facility specific regulations requiring the emission reductions associated with the Project's transition from the Baseline BA to the Project BA.

Criterion	ACR Standard or Methodology Specific Requirement	Proof of Project Eligibility
Regulatory Compliance	Projects must maintain material regulatory compliance. In order to maintain material regulatory compliance, a project must complete all regulatory requirements at required intervals. Project Proponents are required to provide a regulatory compliance attestation to a verification body at each verification. This attestation must disclose all violations or other instances of noncompliance with laws, regulations, or other legally binding mandates directly related to project activities.	The Facilities within each Project maintain material regulatory compliance for the entire reporting period with respect to the Project.
Permanent	For projects with a risk of reversal of GHG removal enhancements, Project Proponents shall assess risk using an ACR-approved risk assessment tool.	There is no risk of reversal of GHG removal enhancements for project type.
Net of Leakage	The Methodology has determined there is no market-shifting leakage and, hence is to be disregarded. Activity shifting leakage - If the Project Activity results in the equipment used in the baseline being transferred to another location or activity in which a BA with a GWP greater than 30 is used, leakage effects are to be considered. If the baseline equipment is also used in the project or is decommissioned, then leakage is to be disregarded.	Leakage is not considered for these Projects. The only modifications to the equipment required for the BA transition are the replacement of the nozzles for the BA spray guns or the guns themselves. The remainder of the Baseline foam manufacturing equipment is used in the Project.

Criterion	ACR Standard or Methodology Specific Requirement	Proof of Project Eligibility
Independently Validated and Verified	ACR requires third-party validation and verification, by an ACR-approved Validation/Verification Body (VVB), at specified intervals in order to issue ERTs. Governing documents for validation and verification are the ACR Standard, relevant sector standard, relevant methodology, and the ACR Validation and Verification Guideline.	According to ACR rules, the Project benefits will be validated and verified by an independent auditor.
Community & Environmental Impacts	ACR requires community and environmental impacts to be net positive overall. Project Proponents shall document in the GHG Project Plan a mitigation plan for any foreseen negative community or environmental impacts and shall disclose in their Annual Attestations any negative environmental or community impacts or claims of negative environmental and community impacts.	The Projects have only positive effects on the environment, including reduced localized GHG emissions for combating climate change, as well as doing so without the use of hydrocarbons, which contribute to localized and tropospheric ozone formation. Potential negative impacts were considered for these Projects and there were not found to be any.
Unique	The project reductions must not have been included or credited in any other carbon offset credit program	The Projects involve emission reductions which have not been previously listed or quantified for creation and recognition as emission offset credits.

A4. LOCATION

The Projects include 19 foam manufacturing Facilities that are customers of Foam Supplies (FSI). Each Project represents a single year of foam production. FSI manufactures and supplies the BA used by the Facilities for manufacturing foam. For project registration purposes the Project locations will be set at the FSI facility in Earth City, MO and Lewisville, TX. See Appendix for a list of the facility locations.

Table 2 – Project Locations

Project	Location
001E	Foam Supplies (manufacturing emissions) 4387 N. Rider Trail, Earth City, MO 63045 Foam Supplies (manufacturing emissions) 590 Benjamin's Way, Lewisville, TX 75057 North America (use emissions)
001F	Foam Supplies (manufacturing emissions) 4387 N. Rider Trail, Earth City, MO 63045 Foam Supplies (manufacturing emissions) 590 Benjamin's Way, Lewisville, TX 75057 North America (use emissions)
001G	Foam Supplies (manufacturing emissions) 4387 N. Rider Trail, Earth City, MO 63045 Foam Supplies (manufacturing emissions) 590 Benjamin's Way, Lewisville, TX 75057 North America (use emissions)
001H	Foam Supplies (manufacturing emissions) 4387 N. Rider Trail, Earth City, MO 63045 Foam Supplies (manufacturing emissions) 590 Benjamin's Way, Lewisville, TX 75057 North America (use emissions)
001I	Foam Supplies (manufacturing emissions) 4387 N. Rider Trail, Earth City, MO 63045 Foam Supplies (manufacturing emissions) 590 Benjamin's Way, Lewisville, TX 75057 North America (use emissions)
001J	Foam Supplies (manufacturing emissions) 4387 N. Rider Trail, Earth City, MO 63045 Foam Supplies (manufacturing emissions) 590 Benjamin's Way, Lewisville, TX 75057 North America (use emissions)

A5. BRIEF SUMMARY OF PROJECTS

Description of Project Activity

The Project Activity is the transition from non-Eligible BAs (Baseline BAs) to Ecomate®, an Eligible BA (Project BA) at foam manufacturing Facilities in North America listed in the Appendix. Each Facility is a client of Foam Supplies (FSI). FSI is a Systems House, as defined in the Methodology, and also the manufacturer and distributor of Ecomate®. FSI, as the Project Proponent and is aggregating these eligible Facilities into this single ACR Project.

As a Systems House, FSI supplies the chemical polyurethane (Foam System) that involves two tanks of chemicals (A-side and B-side) that are then mixed by the Facilities at their manufacturing Facility to produce the foam. The BA is contained within the Foam System formulations supplied by FSI to the Facilities. The Foam Systems are prepared by FSI, weighed to record product volume and shipped to the foam manufacturer (Facility) either in pressurized tanks or non-pressurized totes and drums. The pressurized tanks are returned to FSI to be refilled whereas, the non-pressurized totes are not returned.

The pressurized tanks have unique serial numbers for each tank and unloaded by the foam manufacturer according to FSI' Monitoring and Quality Control Specifications. At the foam manufacturing facility, the A-side and B-side of the Foam System are fed into a mix-head, mixed, and forced into the foam mold cavity where the A-side and B-side systems react, foam, cool, and harden to the configuration of the cavity, producing the requisite product. At all times the isocyanate and the polyol are under a nitrogen blanket and cannot escape from the tanks. When the tanks are empty (a small volume of residual chemicals remain in the tanks) they are returned to the FSI facility where they are again weighed. This mass-balance measurement process is the basis for determining the amount of Foam System material used by the foam manufacturer and the basis for the calculation of the quantity of Project BA being used by the Facilities.

Some Facilities receive their product in totes or drums where all of the product is consumed and there are no residual chemicals remaining. The empty totes or drums remain with the customer for their future use or disposal and are not returned to FSI for refill. Therefore, for Facilities using drums or totes that are not returned to FSI for a refill, only the outgoing volume is calculated.

Background Information

Blowing agents (BAs) are a key ingredient in the production of foam. These BAs contain chemicals that release GHGs during manufacture, use, and end-of-life (destruction). The Montreal Protocol has taken action to limit the use of high GWP BAs and over the years and the

US EPA implemented the Significant New Alternatives Program (SNAP) to work with and guide industry in these transitions. As a result, the majority of BAs currently in the market today HFCs. HFCs, while safer for the ozone compared to CFCs and HCFCs, are still powerful GHGs when released into the atmosphere.

An opportunity to reduce emissions beyond regulatory compliance is by replacing HFC BAs with next generation BAs that have near zero GWP and near zero ODP.

Project Purpose(s) and Objective(s)

The purpose of each Project is to offset the GHG emissions that would have been produced by the manufacturing and use of foams with HFC BAs by transitioning to Ecomate, a near zero GWP and ODP BA.

A6. PROJECT ACTION

Description of prior physical conditions

All of the Facilities have been manufacturing foam for many years and have historically used CFCs, HCFCs, and/or HFCs as BAs. These are high GWP BAs that are being phased out by the Montreal Protocol. All the Facilities in each Project have taken early action to go above and beyond regulatory requirements to transition to an Eligible BA, as defined by the Methodology. FSI is a system supply house that provides the chemicals, storage, and delivery systems to produce the foam used by the Facilities.

Description of how the Projects will achieve GHG reductions and/or removal enhancements

FSI has been promoting the use of Ecomate as a low-GHG BA since 2002. Each of the Facilities in the Projects opted to transition from a high-GWP BA to Ecomate for its low GWP value. The voluntary transition of each Facility to an Eligible BA in their foam production results in a reduced amount of GHG in the manufacturing and use of the foam produced by the Facilities. The Projects measure the amount of Eligible BA used by each Facility against the amount of Baseline BA that would have been used to produce the same quality of foam product. Because Ecomate has a different molecular weight and chemical structure than the Baseline BAs, less Ecomate is needed to produce the same quality of foam. This results in a BA ratio (BAR) that is multiplied by the actual annual Project BA usage to obtain the amount of Baseline BA that would have been used in absence of the project activity measures the amount of Baseline BA whose use has been avoided by the use of the Project BA.

Description of project technologies, products, services and expected level of activity

The Facilities manufacture the foam in batch processes on a daily basis. Therefore, the project activity is ongoing throughout the year within each Facility as they produce the foam and at FSI where they continually deliver the BA to the Facilities.

- ***Ecomate***: A low-GWP BA manufactured and sold by FSI
- ***FSI***: Supplies the Eligible BA from its facilities located in Earth City, MO and Lewisville, TX to the Facilities (see Appendix A for Facility locations) and is responsible for maintaining the sales records and volumes associated with the BA usage. FSI also provides the maintenance for the foam manufacturing equipment at the Facilities.
- ***A-side and B-side tanks***: These are the tanks that are filled with BA and other foam chemicals at the FSI facility in Earth City, MO and Lewisville, TX. They are shipped to each Facility for use in their foam products and then returned to FSI when empty.
- ***Totes and drums***: Used to supply BA's to customers but they are not returned to FSI for a refill. Unlike tanks, the customer consumes the entire amount of product supplied by FSI.
- ***Foam manufacturing equipment***: Equipment located at each Facility that produces the foam product. The equipment consists of an electronic control panel, foam spray guns that blend the A-side and B-side tank chemicals, and a foam molding machine.

A7. EX ANTE OFFSET PROJECTION

Project	Vintage	Total ERTs[1]
001E	2009	46,868
001F	2010	60,655
001G	2011	63,778
001H	2012	66,273
001I	2013	67,092
001J	2014	68,943

[1] *Total offsets created reflects the Methodology calculation that allows for all 10 years of reductions to be issued as ERTs upon Verification.*

Emission reductions created from each Project are calculated by subtracting the project emissions (the GHG emissions that result from the use of the Project BA (Ecomate)) from the baseline emissions (the GHG emissions that would result from the use of the Baseline BA).

Baseline emissions are calculated as the total quantity of Baseline BA that would have been used in the foam manufacturing in the absence of the Project Activity, multiplied by the annual loss emission factor associated with the foam application (Tables 4 and 5 of Methodology) multiplied by the number of years remaining in the project, multiplied by the GWP of the Baseline BA.

ACR has granted a "Forward Crediting Policy Revision" in relation to the Methodology. The revision states the following: "A foam blowing agent transition project must result from an action that has already occurred (the transition to an advanced formulation blowing agent) and that action must be verifiable. In order to quantify avoided emissions associated with the transition to an advanced formulation blowing agent, it is necessary to utilize modeled emission rates over a 10-year crediting period. These avoided emissions are quantified during the project's reporting period and, pending a successful verification, Emission Reduction Tonnes (ERTs) are granted for the full 10 years of avoided emissions. The emission rates found in the Methodology are derived from IPCC sources and were accepted for use in the ACR methodology development process. For purposes of conservatism, end of life emissions associated with foam disposal were not included in emission reduction quantification due to the uncertainty regarding future disposal practices, among other concerns.

ACR's forward crediting prohibition shall not apply to foam blowing agent transition projects utilizing ACR's Emission Reduction Measurement and Monitoring Methodology for the Transition to Advanced Formulation Blowing Agents in Foam Manufacturing and Use."

A8. PARTIES

Foam Supplies, Inc. (FSI) – Project Proponent

FSI is a Systems House that manufactures and supplies the chemicals (including the BAs) used by foam manufacturing facilities to manufacture foam products. FSI has been in business since 1970 and has 2 manufacturing facilities in the U.S., 3 international offices, technology partners and distributors in 17 countries, and customers around the world. They are one of the largest independent polyurethane systems suppliers in the United States.

The Facilities in each Project are clients of FSI where FSI has worked with and been responsible for managing the transition of these clients to their Eligible BA (Ecomate). FSI is also one of the authors of the ACR Methodology being used for each Project.

Contact Information:

Address: 4387 N. Rider Trail, Earth City, MO 63045
Phone: 314.344.3330
Website: www.foamsupplies.com

Dentons – Project Management

Dentons is a multinational law firm founded in March 2013 by the merger of SNR Denton, Fraser Milner Casgrain and Salans. It has more than 136 offices across 50-plus countries, with approximately 7300 lawyers and professionals.

Dentons' Climate Change Team consists of lawyers and senior advisors that are architects of emissions trading and strategists behind greenhouse gas regulation, emission reduction solutions and monetization.

Jeffrey Fort (Partner) and Susan Wood (Senior Advisor) are the project managers for each Project. Dentons and Susan Wood Consulting are two of the authors of the ACR Methodology being used for each Project.

Contact information:
Contact: Jeffrey Fort
Address: 233 South Wacker Drive, Suite 5900, Chicago, IL 60606
Phone: 312-876-2380
Email: jeffrey.fort@dentons.com
Website: www.dentons.com

Contact: Susan E. Wood
Address: One Market Plaza, Spear Tower, 24th Floor, San Francisco, CA 94105
Phone: 203-561-9116
Email: susan.wood@dentons.com
Website: www.dentons.com

B.
METHODOLOGY

B1. APPROVED METHODOLOGY

Each Project is submitted under the approved ACR methodology entitled "Emission Reduction Measurement and Monitoring Methodology for the Transition to Advanced Formulation Blowing Agents in Foam Manufacturing and Use, Version 2.0."

B2. METHODOLOGY JUSTIFICATION

The Project involves the transition of foam manufacturing lines from high-GWP BAs (Baseline BAs) to BAs having low-GWP and low-ODP (Eligible or Project BAs). The chosen methodology provides the quantification framework for the creation of carbon credits from the GHG reductions resulting from these activities.

B3. PROJECT BOUNDARIES

The physical boundaries for the Projects are the locations of each Facility where the foam is manufactured. Location information for each Facility will be provided during the Verification process. Once the final foam product leaves the foam manufacturing Facility it is considered “in-use”. However, the location of where the foam product is in-use is not identified. The temporal boundary for each Project is January 1st of each vintage year through December 31st 10 years later (e.g., 1/1/2014 – 12/31/2023).

B4. IDENTIFICATION OF GHG SOURCES AND SINKS

Table 5 – GHG Sources and Sinks

SSR		Source Description	Gas	Included (I) or Excluded (E)	Quantification Method
1	BA Production	Fossil fuel emissions from the production of the BA.	CO_2	E	N/A
			CH_4	E	N/A
			N_20	E	N/A
		Emissions from the production of the BA.	GHG	E	N/A
2	BA Delivery	Emissions from the delivery of the BA to the project site.	GHG	E	N/A
		Fossil fuel emissions from the delivery of the BA to the project site.	CO_2	E	N/A
			CH_4	E	N/A
			N_20	E	N/A
3	Foam Manufacture	Emissions from the manufacture of the foam using a BA in the baseline and project.	GHG	I	Equations 1, 3 & 4
4	Pollution Control	Fossil fuel emissions from air pollution control equipment used in the baseline and project.	CO_2	E	N/A
			CH_4	E	N/A
			N_20	E	N/A
5	Foam Usage	Emissions from the use of the foam in the baseline and project.	GHG	I	Equations 1, 3 & 4

SSR		Source Description	Gas	Included (I) or Excluded (E)	Quantification Method
6	Foam Disposal	Fossil fuel emissions from the transport of the foam to EOL.	CO_2	E	N/A
			CH_4	E	N/A
			N_20	E	N/A
		Emissions from the equipment used to destroy the foam at EOL	CO_2	E	N/A
			CH_4	E	N/A
			N_20	E	N/A
		Emissions from the foam at EOL (e.g. landfill, shredding, incineration, etc.)	GHG	E	N/A

B5. BASELINE

The baseline scenario is the use of a non-eligible BAs as the Baseline BA in the manufacturing and use of foam products. The Baseline BA for some facilities is the actual BA that was used prior to the transition to the Project BA. For others, it is a Default BA.

B6. PROJECT SCENARIO

The Project Scenario is the actual amount of Project BA used by the Facility to manufacture foam with the same thermal quality and in the same Foam Application as in the Baseline Scenario.

B7. REDUCTIONS AND ENHANCED REMOVALS

The Project is based on a simple premise of product replacement and mass-balance. The Baseline BA has a high GWP that produces a significant amount of GHG during the manufacturing and use of the foam product. The Project BA has a low GWP and produces significantly less GHG during the manufacturing and use of the foam product. Baseline BA GHG emissions minus Project BA GHG emissions equals the Project emission reductions and enhanced removals.

B8. PERMANENCE

There is no risk of reversal. Once the polyurethane product is produced with the Eligible BA, the product is made and the associated GHG reductions are fixed.

C.
ADDITIONALITY

Assessment of the Additionality of a Project under this Methodology is defined in the Methodology itself. It is made based on passing the following two tests:

1. Regulatory Surplus Test
2. Performance Standard Test

C1. REGULATORY SURPLUS TEST

In order to pass the regulatory surplus test a project must not be mandated by existing laws, regulations, statutes, legal rulings, or other regulatory frameworks in effect as of the start date that directly or indirectly affect the credited offsets.

The Project and all of the Facilities are not mandated by existing laws, regulations, statutes, legal rulings, or other regulatory frameworks in effect as of the start date that directly or indirectly affect the credited offsets.

C2. COMMON PRACTICE TEST

Not applicable.

C3. IMPLEMENTATION BARRIERS TEST

Not applicable.

C4. PERFORMANCE STANDARD TEST

The Methodology has already completed a market adoption analysis. Therefore, project proponents must only show that their project falls into one of the Eligible Foam Applications found in Table 2 of the Methodology to pass the Practice-Based Performance Standard.

The Project falls into the Eligible Foam Applications listed in Table 2 of the Methodology.

D.
MONITORING PLAN

D1. MONITORED DATA AND PARAMETERS

Data or Parameter Monitored	Q_{EBA}
Unit of Measurement	Pounds
Description	Quantity of Eligible BA used in the Project
Data Source	FSI shipping records of Project BA shipments and returns for each Facility. FSI customer invoices. Recorded tank scale weights for outbound (tanks, totes, and drums) and returning (tanks only).
Measurement Methodology	Outbound tank weight minus retuning tank weight for returned tanks. Outbound weight only for totes and drums.
Data Uncertainty	High level of certainty
Monitoring Frequency	Throughout the projects whenever a tank leaves or returns to FSI.
Reporting Procedure	Monitored weight for outgoing and returning tanks is used for FSI's invoicing.
QA/QC Procedure	Scales are calibrated twice each year by the Accurate Superior Scale in accordance with the scale manufacturer's scale calibration policy. The State of Missouri also performs yearly scale certification. Scales at FSI's TX site are also calibrated by and independent third party and certified by the State of Texas Recorded weights are also used to create the invoices for customers and, therefore, already have a strong QA-QC procedure in place through the FSI billing system.

Data or Parameter Monitored	**BAR**
Unit of Measurement	%
Description	BA Ratio – The quantity of Eligible BA, as compared to the Baseline BA, that is required to replace the Baseline BA to produce a foam with equivalent thermal performance.
Data Source	Product Information Sheets (PIS) from FSI and others
Measurement Methodology	The "mix ratio" and "BA %" from the foam system PIS is used to calculate the "BA / foam ratio" for both the Baseline BA and the Project BA. The Baseline BA "BA / foam ratio" is then divided by the Project BA "BA / foam ratio". The result is the BAR for the Facility.
Data Uncertainty	High level of certainty.
Monitoring Frequency	Once, at the beginning of each project.
Reporting Procedure	NA
QA/QC Procedure	FSI tests each batch of BA they produce against the Product Information Sheet.

Data or Parameter Monitored	**Q_{LBA}**
Unit of Measurement	Pounds
Description	Quantity of BA that is shifted to the new location that results in activity shifting leakage.
Data Source	Maintenance records identify any equipment modified, replaced, or decommissioned as a result of the Project Activity and any equipment moved for use outside of the project boundaries.
Measurement Methodology	Equation #4 in Methodology
Data Uncertainty	High level of certainty.
Monitoring Frequency	Throughout the project, whenever any maintenance or service changes or removes a piece of equipment.
Reporting Procedure	Any maintenance or service records are maintained by FSI in the Facility files.
QA/QC Procedure	NA

Foam application used in the baseline and the project, including 2 years of previous BA used with GWP > 30

The foam application used in the Baseline and the Project were the same for each Facility. Public documents (eg, web sites, advertising, sales records, etc.) show the product for each Facility did not change during the course of the Project. Additionally, FSI service records for both before and after the transition to the Eligible BA show that the equipment used to produce the foam and the foam produced by the Facility was the same.

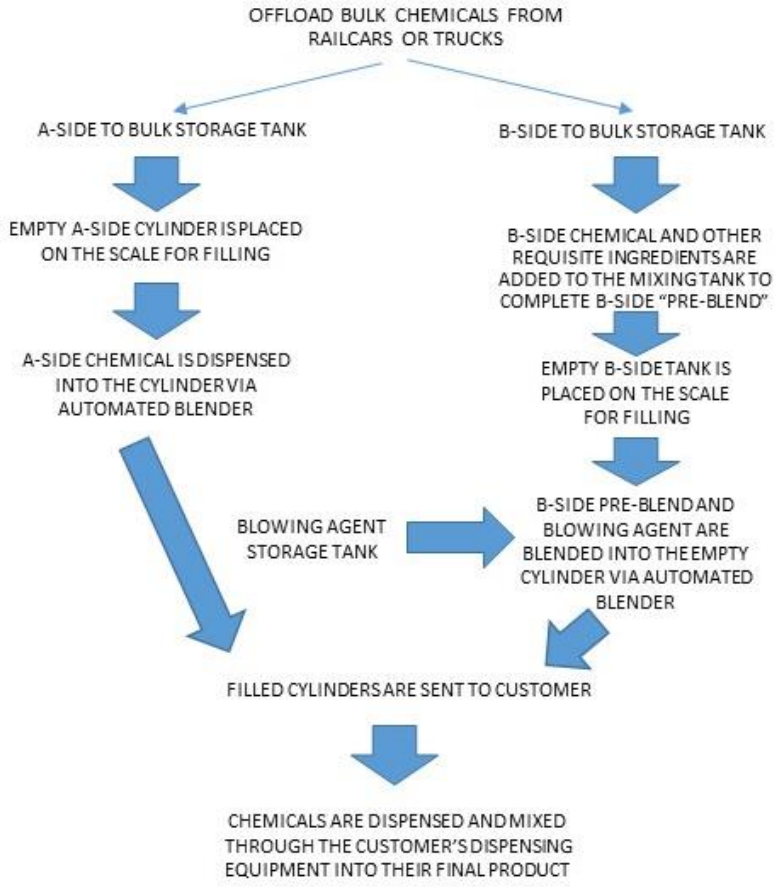
FSI maintains electronic copies of all sales receipts showing the use of a BA with a GWP>30 for 2 years prior to the transition. For other Facilities, FSI maintains the service reports showing the BA used by the Facility prior to the transition (FSI facilitated the transition). The Facilities have provided additional information for 2 years prior showing that a BA with a GWP>30 was used.

Equipment log for all equipment used in the project

All foam dispensing equipment manufactured and sold by FSI is given a unique serial number. Each customer has a profile in FSI's internal database ("Track") that documents all chemical systems and dispensing equipment, past and present, used at each customer location. Each customer keeps a log of daily Q.C. relative to each individual piece of equipment. When FSI personnel perform routine service at a customer's facility a call report is filed in Track and itemized by serial number, so each piece of equipment has a history. Any equipment delivered, removed, or replaced at the Facility, for purposes of tracking any leakage issues, is tracked through this database.

The following flow diagram shows the overall process for all equipment used in the project.

Figure 1 – Process Flow Diagram



Identification for tanks, drums, totes, or other containers

FSI has a sophisticated and automated tank identification and tracking system. All A-side and B-side tanks are labeled with the customer information, location, tank formulation content, shipping dates, etc. Each tank is also given a unique identification number used for tracking its shipment to the customer and return back to FSI.

Pre-shipment and return weights of tanks, totes, drums, or other containers

At its facilities in Earth City, MO and Lewisville, TX, FSI stores the foam chemicals and the BAs in large storage and mixing tanks that are used to fill the pressurized A-side and B-side tanks that are delivered to the foam manufacturing Facilities. As the A-side and B-side tanks are being filled they are weighed to record product volume, shipped to the foam manufacturer (Facility) with unique serial numbers for each tank, and unloaded by the foam manufacturer according to FSI's Monitoring and Quality Control Specifications. At the foam manufacturing Facility, the A-

side and B-tanks are fed into a mix-head, mixed together, and forced into the foam mold cavity where the A-side and B-side systems react, foam, cool, and harden to the configuration of the cavity, producing the requisite product. At all times the tanks are under a nitrogen blanket and cannot escape from the tanks. When the tanks are empty (a small volume of residual chemicals remain in the tanks) they are returned to the FSI facility where they are again weighed. This mass-balance measurement process is the basis for determining the amount of Foam System material used by the foam manufacturing Facility and the basis for the calculation of the quantity of Project BA being used by the Facilities.

Weigh scale calibrations

Scales are calibrated twice each year by Accurate Superior Scales in accordance with the manufacturer's scale calibration policy. The State of Missouri also performs yearly scale certification. Scales at FSI's TX site are also calibrated by an independent third party and certified by the State of Texas. Recorded weights are also used to create the invoices for customers and, therefore, already have a strong QA-QC procedure in place through the FSI billing system.

Shipping records

FSI uses an internal database system called "Track" that records and maintains all of the pertinent information about the Project, including the shipping records. The information contained in this database includes:

- *Customer name and ID number*
- *Tank ID numbers*
- *A-side and B-side chemical contents*
- *Shipment date*
- *3rd party transport company shipping documents, including bills of lading*
- *Pre-shipment weight of tanks*
- *Date tanks returned to FSI*
- *Return weight of tanks*
- *Volume of chemicals used by customer*
- *A-side & B-side usage ratios of customer*
- *Ratio Return Reports*

E.
QUANTIFICATION

E1. BASELINE

Figure 2 – Baseline Emissions Equation

$$BE_{BBA} = \{[(Q_{BBA} \times FYL_{BBA}) + (Q_{BBA} \times AL_{BBA} \times Y_R)] / 2204.62_{lbs/tonne}\} \times GWP_{BBA}$$

Parameter	Description
BE_{BBA}	Baseline emissions (tonnes CO_2e)
Q_{BBA}	Quantity of Baseline BA (lbs) which would have been used to manufacture the foam in the absence of the project activity.
FYL_{BBA}	The first-year loss emission factor associated with the foam application.
AL_{BBA}	The annual loss emission factor associated with the foam application.
YR	The number of years remaining in the project (equal to 9 years)
GWP_{BBA}	The GWP of the Baseline BA.

Figure 3 – BAR Equation

$$Q_{BBA} = Q_{EBA} \times BAR$$

Parameter	Description
Q_{EBA}	The quantity of Eligible BA (lbs) which is used to manufacture the foam for the project.
BAR	The quantity of Eligible BA, as compared to the Baseline BA, that is required to replace the Baseline BA to produce a foam with equivalent thermal performance (%) Calculation Method for each Project: The "mix ratio" and "BA %" from the A-side and B-side of the Product Information Sheet is used to calculate the "BA / foam ratio" for both the Baseline BA and the Project BA. The Baseline BA "BA / foam ratio" is then divided by the Project BA "BA / foam ratio". The result is the BAR for the Facility.

E2. PROJECT SCENARIO

Figure 4 – Project Emissions Equation

$$PE_{EBA} = \{[(Q_{EBA} \times FYL_{EBA}) + (Q_{EBA} \times AL_{EBA} \times YR)] / 2204.62_{lbs/tonne}\} \times GWP_{EBA}$$

Parameter	Description
PE_{EBA}	Project emissions (tonnes CO_2e)
Q_{EBA}	The quantity of Eligible BA (lbs), which is used to manufacture the foam for the project
FYL_{EBA}	The first year loss rate emission factor of the foam application (set equal to Emission Factor used in Equation #1).
AL_{EBA}	The annual loss rate emission factor of the foam application (set equal to Emission Factor used in Equation #1).
YR	The number of years remaining in the Project Activity (9 years)
GWP_{EBA}	The GWP of the Eligible BA

E3. LEAKAGE

Leakage is accounted for using the following equation from the Methodology (Equation #4). The only modifications required for the transition from the Baseline to the Project BA was the replacement of the nozzles for the BA spray guns or the replacement of the BA spray guns. The remainder of the Baseline foam manufacturing equipment is also used in the Project Activity. Therefore, leakage effects are not to be considered and LE_{LBA} is equal to zero.

Figure 5 – Leakage Emissions Equation

$$LE_{LBA} = \{[(Q_{LBA} \times FYL_{LBA}) + (Q_{LBA} \times AL_{LBA} \times YR)] / 2204.62_{lbs/tonne}\} \times GWP_{LBA}$$

Parameter	*Description*
LE_{LBA}	Activity shifting leakage emissions (tonnes CO_2e).
Q_{LBA}	The quantity of BA (in pounds) that is used at the new location
FYL_{LBA}	The first-year loss emission factor associated with the foam application of the BA used at the new location.
AL_{LBA}	The annual loss emission factor associated with the foam application of the BA used at the new location.
YR	The number of remaining years in the project (9 years)
GWP_{LBA}	The GWP of the BA used at the new location

E4. UNCERTAINTY

There is no uncertainty with respect to the projected emission reductions. The data used to calculate the emission reductions goes through various QA/QC processes to ensure the volume of material used and the chemical formulations of the foam are accurate. All of the Facilities have specific third-party customer foam formulation requirements that FSI is obligated to adhere to. The Facilities also have significant regulatory or safety requirements oversight.

E5. REDUCTIONS AND REMOVAL ENHANCEMENTS

The net reductions are finally quantified using Methodology equations 1, 2, 3, 4 and 5.

Figure 6 – Project Emission Reductions Calculation

$$ER = (BE_{BBA} - LE_{LBA}) - PE_{EBA}$$

Parameter	Description
ER	Emission reductions (tonnes CO_2e)
BE_{BBA}	Equation 1 - Baseline emissions (tonnes CO2e)
PE_{EBA}	Equation 3 - Project emissions (tonnes CO2e)
LE_{LBA}	Equation 4 - Project leakage emissions (tonnes CO2e)

E6. EX-ANTE ESTIMATION METHODS

Emission reductions created from each Project are directly correlated to the BA used prior to the transition, the BAR, and the amount of Eligible BA used during the Reporting Period. The equations in the Methodology calculate the GHG reductions in year 1 (the "Manufacturing" year) and the following 9 years (the "Use" years). There is only one Reporting Period for each Project that will issue all 10 years of ERTs upon final Verification.

Table 6- Offset Volume Estimates

Project	Vintage	Total ERTs[2]
001E	2009	46,868
001F	2010	60,655
001G	2011	63,778
001H	2012	66,273
001I	2013	67,092
001J	2014	68,943

[2] *Total offsets created reflects the Methodology calculation that allows for all 10 years of reductions to be issued as ERTs upon Verification.*

F.
COMMUNITY & ENVIRONMENTAL IMPACTS

F1. NET POSITIVE IMPACTS

The potential impacts on the local community and the environment were considered. Positive community impacts from the Project include the reduction of GHG emissions from foam manufacturing both at the local level (near the manufacturing facility) and globally. There were no foreseeable negative impacts to the community or the environment that result from each Project.

F2. STAKEHOLDER COMMENTS

Not applicable for this project type.

G.
OWNERSHIP AND TITLE

G1. PROOF OF TITLE

Each of the Facilities has assigned to FSI all "environmental attributes", and specifically carbon offset credits, from its use of Ecomate® as an Eligible BA. Specifically, all invoices submitted to the Facilities include contractual documentation that assigns the rights to environmental attributes to FSI.

G2. CHAIN OF CUSTODY

The Project has not produced any offsets to date and, therefore, no offsets have been bought or sold previously. Nor does the Project have a forward option contract in place.

G3. PRIOR APPLICATION

These activities have not previously been the subject of an offset project.

H.
PROJECT TIMELINE

H1. START DATE

Table 7 – Project Start Date Determinations

Project	Project Start Date	How Determined
FBA 001E	January 1, 2009	Service records for manufacturing products with Ecomate as blowing agent.
FBA 001F	January 1, 2010	Service records for manufacturing products with Ecomate as the blowing agent.
FBA 001G	January 1, 2011	Service records for manufacturing products with Ecomate as the blowing agent.
FBA 001H	January 1, 2012	Service records for manufacturing products with Ecomate as blowing agent.
FBA 001I	January 1, 2013	Service records for manufacturing products with Ecomate as the blowing agent.
FBA 001J	January 1, 2014	Service records for manufacturing products with Ecomate as the blowing agent.

H2. PROJECT TIMELINE

Table 8 – Project Timelines

Project Number	001E	001F	001G
Initiation of Project Activities	January 1, 2009	January 1, 2010	January 1, 2011
Project Term	1/1/09 - 12/31/18	1/1/10 - 12/31/19	1/1/11 - 12/31/20
Crediting Period	1/1/09 - 12/31/18	1/1/10 - 12/31/19	1/1/11 - 12/31/20
Reporting Period	1/1/09-- 12/31/09	1/1/10-- 12/31/10	1/1/11-- 12/31/11
Frequency of Reporting	Once for 2009	Once for 2010	Once for 2011

Monitoring Period	1/1/09 - 12/31/09	1/1/10 - 12/31/10	1/1/11 - 12/31/11
Frequency of Monitoring	Ongoing throughout 2009	Ongoing throughout 2010	Ongoing throughout 2011
Frequency of Validation	Once in 2019	Once in 2019	Once in 2019
Frequency of Verification	Once in 2019	Once in 2019	Once in 2019

Project Number	**001H**	**001I**	**001J**
Initiation of Project Activities	January 1, 2012	January 1, 2013	January 1, 2014
Project Term	1/1/12 - 12/31/21	1/1/13 - 12/31/22	1/1/14 - 12/31/23
Crediting Period	1/1/12 - 12/31/21	1/1/13 - 12/31/22	1/1/14 - 12/31/23
Reporting Period	1/1/12-- 12/31/12	1/1/13-- 12/31/13	1/1/14-- 12/31/14
Frequency of Reporting	Once for 2012	Once for 2013	Once for 2014
Monitoring Period	1/1/12 - 12/31/12	1/1/13 - 12/31/13	1/1/14 - 12/31/14
Frequency of Monitoring	Ongoing throughout 2012	Ongoing throughout 2013	Ongoing throughout 2014
Frequency of Validation	Once in 2019	Once in 2019	Once in 2019
Frequency of Verification	Once in 2019	Once in 2019	Once in 2019

Appendix

List of Facility Locations

Facility	Location
1	New York
2	Michigan
3	Ontario, Canada
4	Tennessee
5	Michigan
6	Missouri
7	Texas
8	Pennsylvania
9	Kentucky
10	Mexico
11	Wisconsin
12	Alabama
13	Michigan
14	Missouri
15	Missouri
16	Missouri
17	Missouri
18	Missouri
19	Missouri