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**VIA ELECTRONIC FILING**

Compsys and Structural Composites appreciate the opportunity to comment on EPA's proposed rule, *Protection of Stratospheric Ozone: Proposed New Listings of Substitutes; Changes of Listing Status; and Reinterpretation of Unacceptability of Closed Cell Foam Products under the Significant New Alternatives Policy Program; and Revision of Clean Air Act Section 608 Venting Prohibition for Propane*, published at 81 Fed. Reg. 22810 (April 18, 2016).

Structural Composites, Inc. is a research and development company focused on engineering and development of composites for marine, military, and other commercial applications. Structural Composites holds a controlling interest in Compsys, Inc., the manufacturer of preform composites under the brand name Prisma. Prisma products are used in a wide variety of marine applications, as well as in commercial refrigerated trucks and other transportation uses. Our composite preforming production process and products currently require the use of HFC-134a as a foam-blowing agent.

Compsys and Structural Composites recommend that EPA establish a specific application within the low-pressure two-component spray foam end use to reflect the unique attributes of Compsys' product with a temporary narrowed use limit that would permit the continued use of HFC-134a until January 1, 2025. In the alternative, Compsys and Structural Composites recommend that EPA create a new end-use within the rigid polyurethane spray foam category of end-uses in recognition of the differences between Compsys' process and other spray-foam end uses that EPA currently regulates and the current lack of available substitutes for HFC-134a. Compsys and Structural Composites recommend that EPA establish a deadline of January 1, 2025 for the phase-out of HFC-134a for use in spray foam composite preforming. Compsys and Structural Composites also recommend that EPA engage in a technical review for this new end-use no later than January 1, 2022 to determine whether a substitute has been identified for the spray foam composite preforming process.

Compsys and Structural Composites support EPA's proposal to prohibit the importation of closed-cell foam products produced with blowing agents which EPA has determined to be unacceptable for the same end use within the United States. Unlike other pollutants, substances with high global warming potential (GWP) have the same environmental effects regardless of where they are emitted. EPA's proposal will prevent manufacturers from relocating production to nations that do not have such stringent requirements, protecting both the environment and U.S.-based small businesses.

## I. EPA Should Establish a Specific Application within the Low-Pressure Two-Component Spray Foam End-Use or a Create a New End-Use that Accommodates Products such as Prisma within the Rigid Polyurethane Spray Foam Category.

### *a. Compsys' Product Differs Significantly from the Applications and End-Uses EPA Has Identified within the Rigid Polyurethane Spray Foam Category.*

Compsys' Prisma product is neither a typical rigid polyurethane "spray foam" or "marine flotation foam."[1] Rather, our unique product has characteristics of both of these end-uses. In the proposal, EPA describes as marine flotation foam as foams that "typically are injected into a cavity in the boat wall from a two-canister (A- and B-side) system under lower pressures... [to] provide structure as well as buoyancy."[2] EPA defines low-pressure two-component spray foam as products that are "pressurized to less than 250 psi during manufacturer, are sold in pressurized containers as two parts (*i.e.*, A-side and B-side), and are sprayed in the field for thermal insulation and air sealing of buildings. Low-pressure two-component spray foams are typically applied in situ relying upon a gaseous foam blowing agent that also serves as a propellant; pumps typically are not needed."[3] EPA noted in the proposal:

> "[I]t may be reasonable for several of the end-uses to be broken down further. Consistent with previous practice and as EPA is proposing in certain instances in this proposal, EPA could consider adopting temporary narrowed use limits for a specific application within an end-use if the Agency determined that substitutes would be available for all but that specific application as of a particular date. In that case, for applications in that end-use not covered by the narrowed use limit, the proposed rule would list the substitute as unacceptable as of that date. For the specific application at issue, the proposed rule could contain both a temporary narrowed use limit with an expiration data and a listing as unacceptable upon the expiration of the narrowed use limit. Any end user within the covered application would need to comply with the requirement to analyze and document that there are no other alternatives that are technically feasible for their specific end-use in order to use the substitute identified in the narrowed use limit."[4]

Compsys and Structural Composites support the creation of a specific application and narrowed end-use within the spray foam end-use that reflects the differences between Compsys' process and other regulated applications. Compsys' process differs in several significant ways from both marine flotation foam, regulated under the final rule issued at 80 Fed. Reg. 42870 (July 20, 2015) and from the low-pressure two-component spray foam products that EPA described in the current proposal. Compsys' process does involve two components (similar to the A-side and B-side canister approach) and is sprayed at low pressures. However, Compsys product is not sprayed or injected into boat cavities or walls, as is the case with true marine flotation foam. Nor is Prisma sold in pressurized containers for application *in situ* for thermal insulation or air

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[1] *See* Structural Composites Comments, EPA Docket ID No. EPA-HQ-OAR-2014-0198-0172 (Oct. 20, 2014); *see also* ACMA Comments, EPA Docket ID No. EPA-HQ-OAR-2014-0198-0132 (Oct. 20, 2014), and Structural Composites letters to EPA Docket dated April 13, 2015, May 7, 2015, and June 2, 2015.
[2] 81 Fed. Reg. at 22868.
[3] *Id.* At 22869.
[4] *Id.* at 22824.

sealing. Rather, Compsys' Prisma product is produced entirely within Compsys' manufacturing facilities as structural components for boats, as well as for other uses.

Prisma products use high-quality fiberglass knit fabrics, 2 PCF flotation grade polyurethane foam, and a polyester veil. The fiberglass knit fabric is placed inside a mold in order to create pre-formed, standard shape and size components. The fiberglass knit fabric itself can be shaped to form the frame of the hull, hatch, or other component of a boat to create custom products. The polyurethane foam is then sprayed or injected into the mold or frame, and closed out with a patented polyester tie veil interface. Once cured, this patented process creates an extremely strong interface between the fiberglass and foam. It also helps support dynamic loads, resists cracking and wear, and allows the product to be extremely lightweight

Prisma foam products do not offer only flotation. The patented polyester tie veil interface creates such a strong product that it can be used for structural boat components such as stringers, bulkheads, hull and deck stiffeners, beams, fuel tank supports, structural members, long-span stiffeners, corner stiffeners, hull side-to-bottom strengthening, hatch and swim platform reinforcement, insulated compartments and fish boxes. While these components do provide flotation benefits, they also form the structure of the boat. Unlike the typical low-pressure two-component or marine flotation foams described by EPA, these components are produced as standard-sized, individual components that are then shipped to Compsys' customers to be installed into boats. Prisma components are not molded and formed in place. The rigid foam components take the place of components that would otherwise have been made of wood or other materials. Compsys currently supplies components or licenses our technology to more than 30 OEM boat manufacturers. Overall, the characteristics of Prisma offer major environmental benefits, including improved fuel efficiency and reduced GHG emissions.

b. *Compsys Faces Significant Technical Challenges in Identifying an Alternative and Meeting the Deadlines Proposed for Current Applications Identified within the Spray Foam Category of End-Uses.*

Compsys and Structural Composites have researched, and continue to investigate, whether alternatives to HFC-134a can be used in our process. We previously phased out HCFC-22 and replaced that substance with HFC-134a. Compsys and Structural Composites are working closely with BASF to identify an alternative to HFC-134a. However, we have not yet identified a substitute for HFC-134a. BASF has conducted several trials with an alternative that appeared to be promising, but the formulation provided by BASF failed to perform properly in Compsys' process. BASF has now turned to developing and evaluating another alternative, but the timing is uncertain.

Compsys and BASF are currently considering whether Solstice™ Liquid Blowing Agent (LBA) (1233zd(E), *trans*-1-chloro-3,3,3-trifluoroprop-1-ene) or Solstice™ Gaseous Blowing Agent (GBA) (HFO-1234ze) could be adapted to Compsys' process. EPA identified these as the likely substances to which high-pressure two-component spray foam and low-pressure two-component spray foam would transition after the phase-out of HFC-134a. To date, the GBA causes the resin used in Compsys' process to have a very short shelf life and initial trials at BASF with small-scale parts have not been successful. Likewise, the LBA has a liquid phase that causes

Compsys' foam to saturate the reinforcing fabric before it expands. This allows the foam to expand into the fabric, deforming the part and making it unusable.

These trials have taken nearly a year, to date, and have been continually delayed by technical challenges on BASF's part. Compsys initially expected to begin larger-scale trials in late 2015, but this timing has been delayed numerous times by the lack of availability of an alternative formulation that can perform as required even for small components.

Once BASF develops a potential alternative, then Compsys will have to begin its evaluations of how the formula performs. This involves several different trials creating parts of different sizes. The effect of ambient temperatures on the foam-blowing process also will be evaluated. Cool weather testing must be performed, which can only be done at certain times of year given Compsys and Structural Composites' location in Florida. If the BASF formulation meets initial performance expectations, then Compsys will have to evaluate structural and physical integrity of the product, as well as its insulating and flotation properties. For marine uses, the product also must be certified by the U.S. Coast Guard as meeting the applicable marine flotation foam requirements. Compsys also will have to conduct a serious of customer trials for each of the company's more than 20 direct-supply accounts in order to ensure that the new product meets Compsys' customers' needs. Compsys would then have to replace any components used in its manufacturing process that are not compatible with the new alternative.

At minimum, this process will take between 24 and 36 months from the time a valid alternative is identified and initial trials are successful. If the new alternative fails at any time within that period of time, then the process will have to start again from the beginning. At the current time, it is nearly impossible to predict how quickly Compsys will be able to implement an alternative foam blowing agent. Compsys and Structural Composites have little to no control over the pace at which BASF develops an alternative for this process. Although the companies are committed to expeditiously implementing an alternative, Compsys cannot speed up the pace of the development of that alternative. Nor can Compsys accelerate the pace of its product trials without potentially compromising product performance and customer expectations.

Compsys generally agrees with the economic impact of transitioning to an alternative, as outlined in EPA's "Economic Impact Screening Analysis for Regulatory Changes to the Listing Status of High-GWP Alternatives used in Refrigeration and Air Conditioning, Foams, and Fire Suppression." In less than a year since the July 20, 2015 final rule, Compsys has spent approximately $75,000 on efforts to identify an alternative. Once the trial phase begins, costs will increase dramatically. If alternatives fail and several rounds of trials are required, Compsys' costs could easily reach $500,000 to $1 million. For a small business, these costs will be extremely burdensome, particularly if Compsys is forced to phase out the use of HFC-134a before an adequate substitute has been identified for use in Compsys' production process.

Therefore, Compsys recommends that EPA establish a new, temporary narrowed use limit within the low-pressure two-component spray foam end use, or within the larger spray foam category of uses, for the spray foam composite preforming process with a deadline of January 1, 2025 for the phase-out of HFC-134a. As we have explained, Compsys is committed to transitioning to an alternative foam blowing agent. Understanding EPA's concerns about the environmental benefits of a widespread transition away from HFC-134a, Compsys would be willing to engage in a technical review with EPA no later than January 1, 2022 to determine if an

alternative has been identified for use in Compsys' manufacturing process. If BASF and Compsys identify an alternative foam blowing agent before January 1, 2022, Compsys also would commit to notifying EPA of this development and discussing the lead-time for a full transition to the alternative.

c. *Composite Preforming Offers Significant Lifetime GHG Reductions and Improvements in Fuel Economy when Used in Marine and Transportation Applications.*

Compsys' Prisma product results in significant lifetime GHG reductions and offers measureable improvements in vehicle and engine fuel efficiency. Our research, including that conducted jointly with the Department of Defense and U.S. Navy, indicates that Prisma products can achieve a 40-60% overall reduction in boat weight compared to standard fiberglass construction, without sacrificing hull strength. Lighter-weight boats also achieve better fuel economy—reducing U.S. petroleum consumption, GHG emissions, and emissions of other pollutants of concern. Compsys and Structural Composites found that boats built using our technology achieved up to a 40% improvement in fuel efficiency.

Prisma also has great potential for use in the on-road transportation sector, particularly in refrigerated trailers. Prisma is at least 25% more thermally efficient that current trailer fabrications, leading to lower usage of on-board cooling technologies, which in turn means lower overall fuel consumption. Because Prisma is so lightweight yet structurally strong, it can be used as structural components in both refrigerated and standard trailers. Lighter-weight trailers also contribute greatly to overall fuel savings, reduced GHG emissions, and lower emissions of other air pollutants. Prisma also can be used to create structural components for flat-bed trailers, truck bodies, buses, recreational vehicles, and other types of vehicles.

EPA is currently working on a rule to establish more stringent GHG emission standards for heavy-duty trucks and trailers. Our technology has the potential to offer significant overall GHG reductions and fuel savings for this transportation sector. Compsys therefore recommends that EPA establish a temporary narrowed use limit for spray foam composite preforming that would allow the use of HFC-134a until January 1, 2025. This deadline will provide Compsys and Structural Composites with adequate time to research, develop, and implement an alternative foam-blowing agent for products that offer opportunities for achieving significant GHG reductions from the on-road transportation sector.

d. *Very Little HFC-134a is Released into the Atmosphere in the Composite Preforming Process.*

Our preliminary research indicates that approximately one-tenth of the HFC-134a used in our composite preforming process is released into the atmosphere. Our polyurethane foam is sprayed into a mold that is completely encapsulated in a composite coating. Because of the size of the HFC-134a molecule, it cannot pass through the composite coating. Thus, any HFC-134a that reaches the atmosphere occurs during the spray process. Once the foam is enclosed and fully encapsulated, any HFC-134a retained in the foam will be permanently enclosed.

As a result, the GHG emissions and overall global warming potential associated with HFC-134a use in composite preforming are extremely low. Moreover, such GHG emissions are non-

recurring and are negligible in comparison to the overall GHG reductions that will be achieved by improving boat and vehicle fuel economy. Our calculations indicate that use of Prisma preform technology in refrigerated trailers can reduce GHG emissions by approximately 25 tons of $CO_2$-equivalent per year and 650,000 lbs. of $CO_2$-equivalent over the useful life of the trailer. Also associated with use of lightweight Prisma products would be hundreds of thousands of gallons of fuel savings.

Due to the great potential for longer-term GHG reductions at the cost of de minimis, near-term emissions of HFC-134a from the foam blowing process, Compsys and Structural Composites urge EPA to continue to allow the use of HFC-134a as a blowing agent for composite preforming until January 1, 2025.

## II. EPA Should Finalize the Proposed Prohibition Against the Importation of Products Produced with HFC-134a as the Foam Blowing Agent if Similar Uses Will Be Prohibited Within the U.S.

In the proposed rule, EPA proposed to prohibit the importation of products made with foam if the foam blowing agent for that product and end use was unacceptable for that end-use in the United States. Compsys and Structural Composites strongly urge EPA to finalize this approach.

Compsys and Structural Composites agree with EPA that Clean Air Act Sections 610 and 612 provide EPA with the authority to define the "use" of a closed-cell foam product that contains a blowing agent that EPA has found to be unacceptable for use in the U.S. to include the importation, sale, and installation of such products within the U.S., even if the product was manufactured outside of the U.S. As EPA explained in the proposal, the use of a closed cell foam that contains a prohibited blowing agent constitutes the use of a substance that EPA has found to be unacceptable. Compsys also agrees with EPA that emissions from a closed cell foam product would occur within the U.S. at the time the product is destroyed or at disposal. Therefore, we support EPA's legal rationale for changing the agency's prior interpretation and prohibiting the importation or sale of closed cell foam products in the U.S. no later than one year after the date on which the blowing agent used and contained in the product is unacceptable within the U.S.

As EPA well knows, the effect of a substance with global warming potential is the same regardless of where that molecule is released into the atmosphere. Any reductions in GHG emissions that EPA expects to achieve under the SNAP rule may easily be offset by companies moving production of foam blowing operations outside of the U.S. By continuing to allow importation of foam products produced with blowing agents deemed unacceptable in the U.S., the rule may actually lead to the unintended consequence of *increased* overall GHG emissions—albeit outside of the U.S.

Even leaving aside environmental considerations, EPA's decision to continue to allow imported foam products while prohibiting the same manufacturing processes within the U.S. has massive financial and competitive consequences for the foam blowing industry. Companies with operations located solely within the U.S.—including small businesses such as Compsys and Structural Composites—that contribute to the growth and prosperity of the U.S. economy will be put out of business. Multi-national companies or those that have chosen to site

manufacturing in other nations with less-stringent environmental standards will prosper. If EPA retains the exemption for imported products, then EPA must reconsider the applicability of the final SNAP rule to products manufactured within the U.S. to avoid bankrupting successful, innovative American small business.

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Compsys and Structural Composites greatly appreciate the opportunity to comment on this proposed rule. Please do not hesitate to contact me at 321-252-4566 or slewit@aol.com with any questions you may have.

Sincerely,

Scott M. Lewit /ATIC

Scott M. Lewit
President
Structural Composites, Inc. and Compsys, Inc.