



May 27, 2020

National Highway Traffic Safety Administration
Docket Management Facility, M-30
U.S. Department of Transportation
West Building, Ground Floor, Rm. W12-140
1200 New Jersey Ave, SE
Washington, DC 20590

Docket No. NHTSA-2020-0014

Re: Occupant Protection for Automated Driving Systems, A Proposed Rule by the National Highway Traffic Safety Administration on 03/30/2020, [Docket No. NHTSA-2020-0014]

Dear Deputy Administrator Owens,

The American Chemistry Council (ACC), including its Plastics Division, is pleased to provide the following comments to NHTSA (the Agency) regarding the “*Occupant Protection for Automated Driving Systems, A Proposed Rule by the National Highway Traffic Safety Administration*” (NPRM).

I. BACKGROUND

The ACC is a national trade association representing U.S. companies that manufacture chemistry and plastics. American chemistry is an innovative \$553 billion enterprise that plays a critical role in delivering a sustainable future through resource and fuel efficiency, material innovation, and continuous improvement in our products and operations. Last year alone, America’s chemistry industry spent approximately \$10 billion in research and development to support innovation in a variety of fields, including energy, food, health and water.

The business of chemistry creates over 542,000 U.S. manufacturing and high-tech jobs, and 4.4 million related jobs that support families and communities. This includes the manufacturing of lightweight plastics and polymer composites used by the transportation industry. Every day, plastics and polymer composites help deliver cleaner air and water, safer living conditions, efficient and affordable energy sources, lifesaving medical treatments and safe, and innovative lightweight vehicle solutions.

Automotive composites provide countless innovative lightweight solutions, including reconfigurable flexible interiors for Automated Driving System equipped vehicles (ADS-equipped vehicles), display and touch screens, antimicrobial self-cleaning surfaces for fleet and ride share vehicles, interior and exterior lighting and important autonomous vehicle (AV) safety features such as back-up cameras, sensors, LIDAR, radar and air-bags. Lightweight polymer composite auto parts typically comprise over 50 percent of a vehicle’s material volume, but less than 10 percent of its weight.



Polymer composites are a combination of tough plastic resins that are reinforced with glass, carbon fibers and other materials. These materials often weigh far less than traditional automobile materials, yet maintain high levels of strength and a high resistance to corrosion. These materials not only provide benefits of sustainability, economy and safety for innovations, but they can also offset the substantial additional vehicle weight necessary to enable AV technologies and ADS-equipped vehicles. Additional properties, including bio-based and recyclability focused material capabilities, strength to weight ratio and excellent energy absorption, make these materials especially well-suited for the design and manufacture of self-driving light-duty vehicles.

II. Comments to the Section I. Executive Summary

ACC applauds the Agency for its efforts to modernize many of its current crashworthiness Federal motor vehicle safety standards (FMVSSs) to remove unnecessary barriers to ADS-equipped vehicles and the unconventional interior designs that are expected to accompany these vehicles, including the lack of driving controls. As manufacturers necessarily lightweight vehicles to offset the addition of ADS equipment, vehicle lightweighting has, and will continue to spur innovation, growth and competition in the U.S. automotive industry to meet consumer demands for stylish and safe automated vehicles. ACC supports these efforts and requests the Agency's continued recognition of lightweight plastic and polymer composite technologies as a sustainable, economic and safe means for auto manufacturers to lightweight traditional and ADS-equipped vehicles. Among other numerous benefits, automotive plastics and composites play an important role in improved safety, improved design, mass reduction, aerodynamic improvement, electrification and autonomous deployment and optimized component integration.¹ Utilizing plastic and composites within the global automotive industry for ADS-equipped vehicle deployment follows well-documented trends of polymer usage to safely and economically reduce mass and increase efficiency in the civilian and military aerospace industries. Choosing plastic and polymer composites to reduce mass in light-duty vehicles is a decision supported by science that can pay immediate and long term economic and environmental dividends.²

The chart labeled "Figure 1" below provides data regarding the tensile strength and density of filled plastics, polymer composites, metals, and alloys. As shown in the chart, there are many plastics and polymer composites that are significantly less dense than most metals and alloys while offering similar tensile strengths. This data illustrates the fundamental physical advantage that many plastics and polymer composites can offer over metallic automotive materials: higher strength-to-weight ratios enable automakers to lightweight ADS-equipped vehicles while maintaining the performance and innovative, unconventional interior designs that AV consumers will demand.³

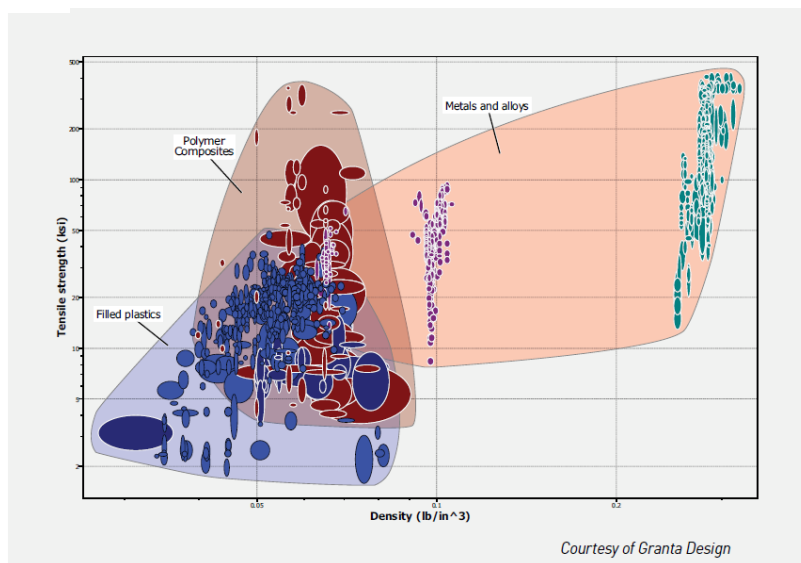
¹ EPA, NHTSA and CARB, "Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025, Appendix", pp. B-46-B-76 (July 2016), available at <https://nepis.epa.gov/EPA/html/DLwait.htm?url=/Exe/ZyPDF.cgi/P100OYCH.PDF?Dockey=P100OYCH.PDF>.

² Trucost, "Plastics and Sustainability: A Valuation of Environmental Benefits, Costs and Opportunities for Continuous Improvement" (July 2016), available at <https://plastics-car.com/Resources/Resource-Library/A-Valuation-of-Environmental-Benefits-Costs-and-Opportunities.pdf>.

³ American Chemistry Council, "Plastics and Polymer Composites for Automotive Markets Technology Roadmap", pp. 10-12, 36-40 and 58, (March 2014), available at: <https://plastics-car.com/Tomorrows-Automobiles/Plastics-and-Polymer-Composites-Technology-Roadmap/Plastics-and-Polymer-Composites-Technology-Roadmap-for-Automotive-Markets-Full-Report.pdf>.



Figure 1 . Tensile strength versus density for filled plastics, polymer composites, and metals and metal alloys



II. CONCLUSION

We thank you for the opportunity to comment on the Agencies' Proposed Rule, "*Occupant Protection for Automated Driving Systems, A Proposed Rule by the National Highway Traffic Safety Administration*". We look forward to strengthening our partnership as we continue work on lightweighting and improving occupant safety for occupants in ADS-equipped vehicles through the use of plastics and polymer composites.

Sincerely,

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