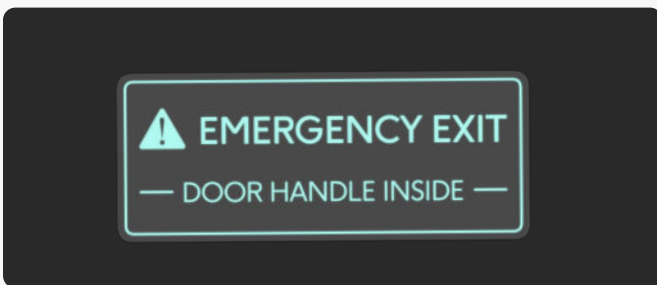




## Case Study

# General Motors & Honda & Polymer Fusion Labeling

How General Motors and Honda addressed safety concerns in their autonomous vehicle project through the use of Polymer Fusion.



# Executive Summary

The Cruise is an autonomous vehicle made in collaboration between General Motors and Honda. During production and testing, a paramount safety challenge was identified: the necessity for passengers to locate the emergency door release in scenarios where the vehicle's power systems fail. Traditional emergency indicators and labeling methods fell short, unable to meet the critical criteria of visibility from all angles, photoluminescent visibility in power outages, and permanence over the vehicle's lifetime, estimated at 15+ years. Furthermore, traditional adhesive-based labeling solutions were deemed unsustainable, failing to comply with recyclability standards required by the International Material Data System (IMDS). These limitations highlighted the need for an innovative labeling solution.

Polyfuzer<sup>®</sup> Graphics Corporation was tasked with developing a photoluminescent polymer fusion label that was compatible with the polypropylene components used in the Cruise vehicle's interior, specifically for the emergency door release, ensuring the label's visibility, durability, and recyclability.

## Background

Embarking on the Cruise project, GM and Honda sought to push the boundaries of autonomous vehicle technology with a strong emphasis on safety and sustainability. The project aimed to address the unique challenges of autonomous mobility, including ensuring passenger safety in the absence of traditional driver interventions.

## Problem Statement

The introduction of autonomous vehicles brought forth the challenge of ensuring passengers could easily locate emergency exits, even during power outages. The project required a labeling solution that not only remained visible under such conditions but also adhered to stringent sustainability criteria, avoiding the environmental impact associated with non-recyclable, adhesive-based labels.

## Solution

Polyfuzer<sup>®</sup> Graphics Corporation proposed a groundbreaking approach with its photoluminescent polymer fusion labeling technology. This solution was designed to meet all the essential criteria:

1. **Visibility:** Engineered to be photoluminescent, these labels could illuminate the emergency door release mechanism in power outages, ensuring visibility from all angles within the vehicle's interior.
2. **Sustainability:** The labels were made recyclable, aligning with IMDS requirements, and addressed the environmental concerns associated with traditional labeling methods.
3. **Permanence:** Paramount in ensuring that visibility would be maintained for the life of the vehicle, the labels were designed to molecularly bond with polypropylene components. This bond guaranteed true permanence, ensuring the labels would last the vehicle's entire lifetime without peeling or degradation, thereby maintaining critical visibility throughout.

## Implementation

Upon rigorous testing, akin to previous projects that required adherence to GM's stringent standards, the photoluminescent polymer fusion labeling technology received approval for the Cruise Autonomous Vehicle Project. This approval marked a significant step forward, not only underlining the solution's effectiveness in enhancing passenger safety but also its compliance with sustainability standards.

## Conclusion

The successful integration of Polyfuzer<sup>®</sup>'s photoluminescent labels into the Cruise project has set a new benchmark for safety and environmental responsibility in autonomous vehicles. This initiative has demonstrated how innovative solutions can address complex safety challenges while adhering to sustainability principles, paving the way for future advancements in the automotive industry. The collaboration between GM, Honda, and Polyfuzer<sup>®</sup> Graphics Corporation exemplifies the potential for technology to revolutionize vehicle safety, ensuring that autonomous vehicles are equipped to provide passengers with the utmost security and peace of mind.