



**National
Transportation
Safety Board**

Fire Initiation and Propagation

Joseph Panagiotou

Overview

- Fire initiation and propagation
- Passenger vehicle flammability standard (FMVSS 302)
- Improvement of FMVSS 302 is needed to increase safe evacuation time

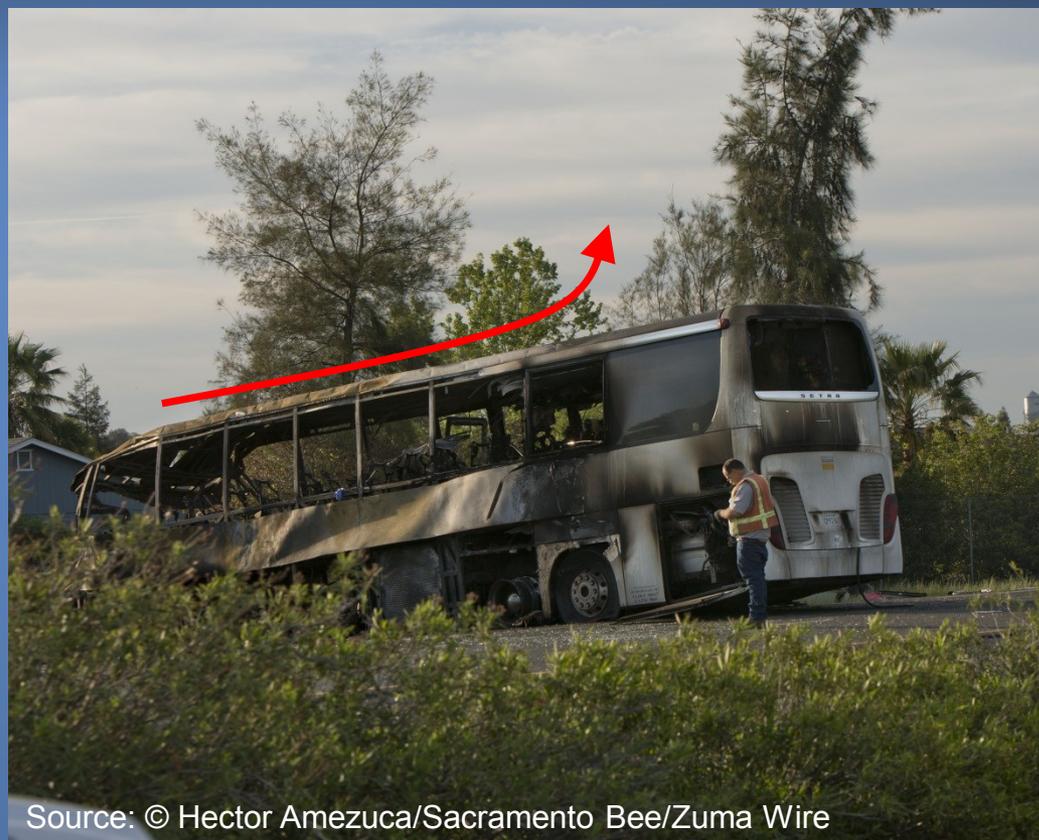
Fire Initiation



- Nearly frontal collision
- Front of motorcoach breached
- Fuel tank rupture and fuel dispersal
- Ignition

Fire Propagation

- Nose-down orientation
- Fire in forward portion
- Opening of rear windows
- Chimney-like effect
- Burn through of roof hatches
- Rapid fire spread



Source: © Hector Amezuca/Sacramento Bee/Zuma Wire

Interior fire conditions

- Approximately 2 minutes after impact
- Smoke filled interior
- Visibility diminished and impeded evacuation
- Burn injuries, smoke inhalation
- 3 fatalities inside motorcoach



Safety Standard FMVSS 302

- Intended to reduce deaths, injuries caused by vehicle fires
- Small-scale flammability test, not real-world ignition sources
- Inadequate for today's vehicle interiors

Fire Safety Recommendation History

- Issued to NHTSA over past 40 years
- Aimed at providing sufficient emergency evacuation of vehicles
- Modern motorcoach interiors burn more easily than rail, transit bus, and aircraft interior materials
- Current motorcoach materials limit time for escape and survival

Same Flammability Requirements

4-passenger capacity



82-passenger capacity



Increased capacity = increased risk



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