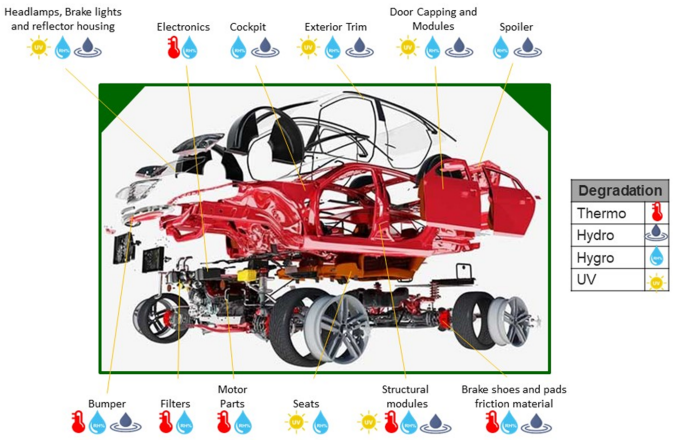
AUTOMOBILES

Components that require evaluation:
1. Rubber tires
2. Sealings
3. Rubber hoses
4. Anti vibration parts
5. Thermal insulators
6. Thermoplastics used in weight reduction
7. Flame retardant cables
8. Gaskets
9. Electrical insulators
10. EV battery components

Karax LLC offers an array of computational tools to meet your predictive modeling needs. K-Suite, our modular computational framework, can help guide your materials decisions with predictive tools for quantifying the effects of various damage processes on the mechanical behavior of polymeric components.

CRITICAL COMPONENTS



RELEVANT MODULES

1. Quasi-static Overloads
2. High frequency vibrations
3. Thermal Oxidation
4. Thermal Cycling
5. Hydrolysis
6. Hygrothermal (Moisture Diffusion)

SOLUTIONS

The K-Load software module is contained within Karax Hybrid Aging and Performance Loss Prediction Platfrom (K-Suite) and is available as an Ansys or Abaques Add-on Module. K-Load is a python-based software module which can be used concurrently with any commerical FEA software to model, simulate, and optimize degradation, reliability, and performance loss of polymeric components exposed to different environmental conditions during their service load. The program currently models adhesives, elastomers, coatings, resins, composites, thermal interface materials and other dielectirc polymers used inelectronics. K-Load enables users to understand the degradation, optimize the compound design, time the the performance loss, and manage maintenance operations for different polymeric components.

K-Load enables users to answer questions like: how long does a component last in certain environment without losing performance below certain limit? How can we change the compound to achieve certain objectives (e.g., performance versus resilience)? Under what condition the material service-life drop below certain time? How can we predict the approximate failure time in a given certain mechanical and enviromental load to reduce downtime and increase performance?

BUSINESS VALUE

1. Our component-specific survivability prediction tools (K-Suite) can inform the design, maintenance, and purchase of rubber tires, sealings, rubber hoses and anti vibration parts that are susceptible to mechanical, thermal, hygrothermal, hydro and radiative loads.
2. Our tool can aide engineers in providing better serviceability, sustainability, and ease of second life of components inside battery systems of electric vehicles.
3. Our tool can provide survivability prediction, aide in cost reduction and predict performance loss of elastomers used in thermal management, electrification, weight reduction and noise, vibration & harshness.