

Safe passage

Transporting hazardous items safely around the world requires specialized knowledge—and ingenuity **By Kathrine Beck**

Mike Ouhl knows all about hazardous chemicals. And in the real world, it's not like the fluorescent green stuff of Hollywood.

"When you watch movies, hazardous chemicals are always oozing and fluorescent green," said Ouhl, Supply Chain Logistics coordinator at the Boeing Commercial Airplanes Spares Distribution Center near Seattle.

Commercial airplane parts are shipped from the facility to airline customers around the globe, and Ouhl and his Shared Services Group teammates are responsible for making sure potentially dangerous items are transported safely.

Some are parts that require special handling. These include oxygen generators that supply oxygen to overhead masks in

the cabin, fire extinguishing devices and squibs—small explosive devices that open emergency doors. Paints and sealers also can be potentially hazardous.

"We work with every spare part that Boeing sells," Ouhl said. "There are nine classes of hazardous materials, and we move all nine."

The classifications are based on characteristics such as flammability, explosiveness and whether chemicals are in solid, liquid or gaseous form. The shipment of these hazardous chemicals involves a vast body of regulations and requirements from the U.S. Transportation Department, the International Civil Aviation Organization, the International Air Transport Association, governments, airlines, and cargo carriers such as FedEx and UPS.

Some items can't travel on passenger aircraft. Others can't be imported into certain countries. Recently, oxygen generators were needed in the Cape Verde islands off the west coast of Africa. No scheduled carriers could legally fly them there, so the parts went to Lisbon, Portugal, and were transferred to a boat for delivery.

"There have been rare occasions," Ouhl said, "that we couldn't find a way to move something to a specific city and country, so we've had to find a common location where the airplane was going to be in maintenance and where we could send the parts."

Often, there's a rush, especially if the situation involves what's known as an AOG, or airplane on ground. But

Supply Chain Logistics can't cut corners.

At the Boeing spares and distribution facility, Ouhl works closely with Commercial Airplanes packaging specialists Dean Ramert and Jim Russell. First they determine the exact nature of the item and research the applicable regulations.

"Once we have all the information, we develop the package," Russell explained. They use a variety of materials including cardboard boxes, fire retardant foam, lumber and reinforcing metal bands to build the packaging.

"The regulations don't tell us how, but they tell us what standards it has to meet," Russell said.

Sample packages are tested in the team's Package Testing Lab. Actual hazardous materials aren't used for the

testing; Russell and Ramert use safe materials with the same characteristics, such as weight and viscosity. Boxes go into an environmental chamber set at various temperatures and humidity levels for 24 hours to simulate sitting on the tarmac or in a warehouse in any climate. A machine test-drops boxes—from 48 inches (1.2 meters)—onto corners, tops, bottoms and sides.

To simulate how packaging performs on trucks, boxes spend time on a vibration table and are then checked for damage and leaks. Boxes are also stacked to see how the weight of other freight can affect the packaging. Flammability tests also may be performed to determine at what temperature the packaging ignites.

And every two years, packaging

has to be retested and recertified.

Jere Schumacher is chairman of the companywide Dangerous Goods Technical Team that oversees hazardous materials compliance issues. "If we aren't compliant," he noted, "there can be fines, as well as civil and criminal penalties. But most of all, when we put products into the public realm—by air, sea or surface—we have to make sure the public is safe." ■

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PHOTO: Mike Ouhl, Supply Chain Logistics coordinator, manages compliance and paperwork for nine classes of hazardous materials. **MARIAN LOCKHART/BOEING**