INSTITUTE OF INTERNATIONAL CONTAINER LESSORS

21 November 2023

IICL – Refrigerated Container Technical Bulletin – RTB 010.

Title: Misuse of refrigerated containers transporting refrigerated and non-refrigerated cargoes.

Reference: Refrigerated containers, also commonly referred to as "Reefers," are designed to transport cargoes that require controlled temperature, and in some cases, controlled atmosphere.

Refrigerated containers frequently carry food products and other perishables; therefore, the interior surfaces must be hygienic and built to facilitate cleaning.

Reefers are built with high-grade stainless-steel, aluminum, copper, and some composite materials. For sustainability, building materials are selected to maximize the payload capacity, being light and as appropriately thin as possible and conform with the various requirements related to temperature control and cargoes.

Purpose: Provide ~~a~~ warning and clarification on the misuse of refrigerated containers due to carrying goods that are not appropriately packaged for transportation in a refrigerated container as well as cargos that may require additional airborne treatments that are introduced to help in the preservation of the cargo or the application of pesticides that are also harmful to the reefer interior. Loading and securing cargo in reefers requires specialized knowledge and experience to avoid possible contamination or physical damage to the container.

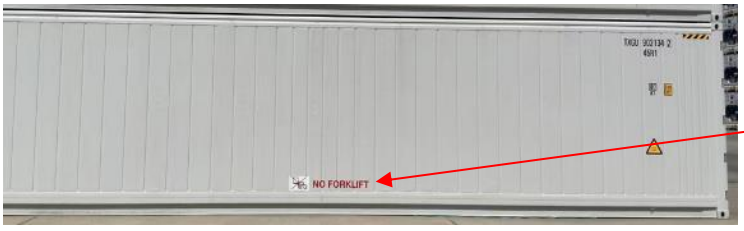
The IICL strongly recommends familiarization with the IICL General Guide for Container Cleaning – 3rd Edition, where some of the common internal contamination scenarios are explained, and consequences illustrated. It is important to emphasize that Reefer repairs, especially due to contamination, can be very expensive therefore avoiding damage is an important aspect of properly operating the equipment.

While Reefers were designed to carry cargoes requiring refrigeration, it is known that in some instances they are being loaded with non-refrigerated general cargoes while being repositioned to locations where reefer cargoes originate.

An example of Reefers being used for cargo that they were not designed for is the transport of heavy paper rolls that can cause extensive damage to the T-floor, bulkhead panels and internal machinery components. Additionally, loading pallets with dimensions built for the interior of dry van containers into refrigerated containers may cause extensive damage to interior linings.

To assist users, lessors may add decals on the refrigerated container with warnings **addressing known situations** that will likely cause significant damage to the equipment. Here below you will find some, **but not limited to, examples of warning decals found on refrigerated containers.**

Important warning signs.

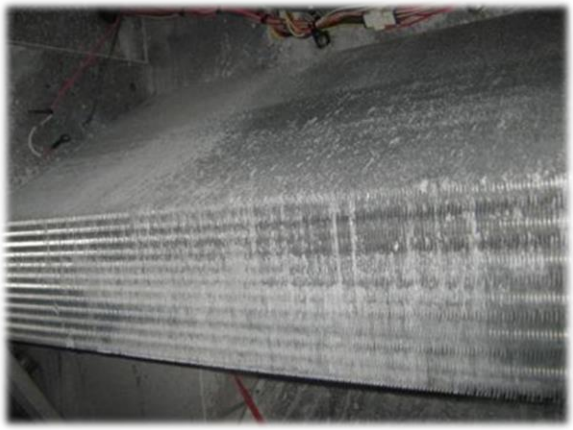


Here below are some examples (text and/or photos) of damages resulting from the misuse of refrigerated containers.

Ammonia Contamination.

Ammonia Contamination.

SO2 Contamination.

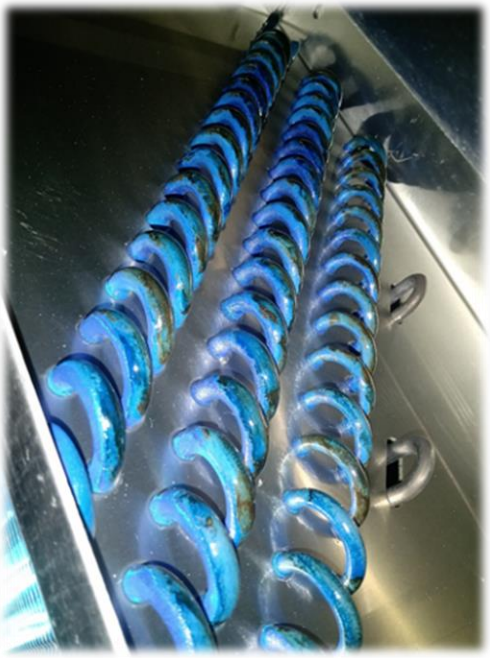


SO2 contamination

SO2 contamination

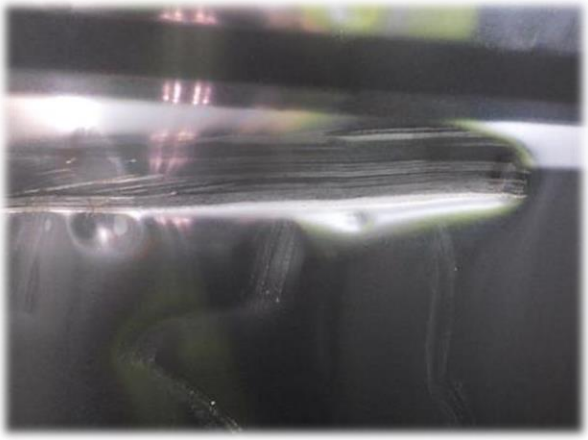
SO2 contamination

The cargo was PTFE in an aqueous ammonia solution, gases coming out of the cargo affected the copper tubes leaving bright blue marks.



Example of chemical gases contaminating copper machinery parts oxidizing the material and causing black stains.

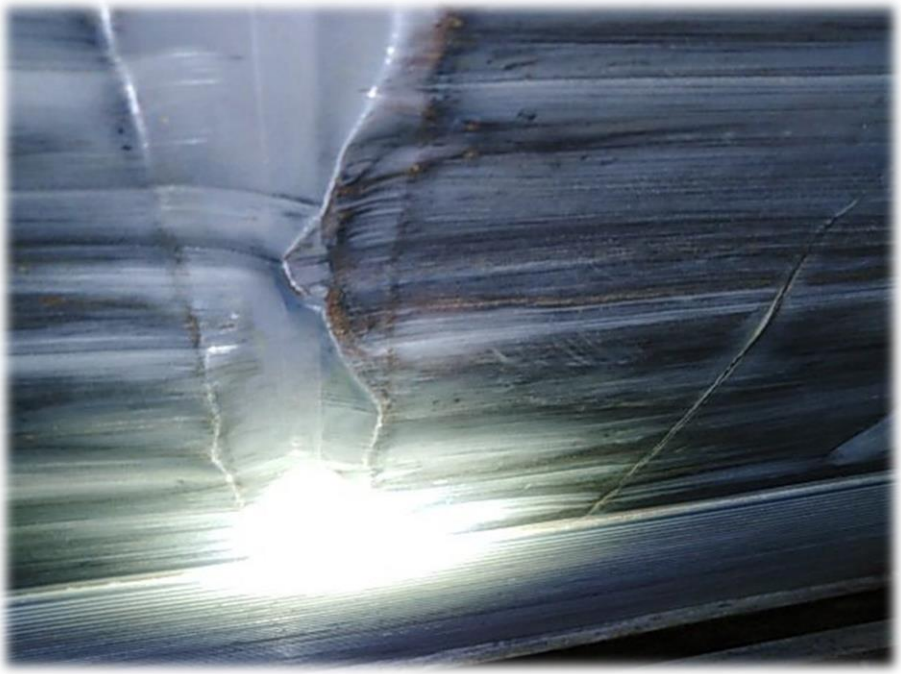
Photos below show typical damage to interior panels (heavily scratched, bent and cut) due to loading of palletized cargoes built with dimensions for the interior of dry van containers instead of reduced internal width of refrigerated containers.




NO CARGO
ABOVE THIS LEVEL
WHEN USED AS REEFER


USED AS REEFER


ABOVE THIS AREA
WHEN USED AS REEFER



Interior contamination caused by destructive and/or caustic substances.

Damage to T-floor caused by improper use of forklift equipment.

Examples of typical damage to evaporator coils caused by paper rolls pushed against bulkhead.

Typical paper roll damage to evaporator coil.

Vacuum damage.

Vacuum damage .

Air fresh cover incorrectly sealed with tape.

Damage caused by improper handling of 40ft refrigerated containers using forklifts.
Usually, bottom rails show either inward or outward deformation close to the center of the container.
The underside typically shows scratches, flat indentations, cracks, and cuts.