



# Safety and Environmental Newsletter

August 2021 — 112<sup>th</sup> Edition

## EMERGENCY PREPAREDNESS

September is **National Preparedness Month**. Each year, the Federal Emergency Management Agency (FEMA) and the Department of Homeland Security (DHS) encourages families and individuals to take simple steps to prepare for and respond to potential emergencies.

### STEP 1



#### MAKE A PLAN

Build a personalized plan for your family that answers questions like “How will I let my family know I’m safe” if separated in a disaster. Discuss where you’ll meet should a disaster take place.

### STEP 2



#### BUILD A KIT

Assemble or update your emergency preparedness supply kit. Your kit should include water, food, can opener, medications, personal care items, flashlight, radio, clothes, first aid kit, and important documents

### STEP 3



#### BE INFORMED

Know what kind of disasters your area is susceptible to. Know your community preparedness plan and how you’ll become aware of emergency alerts.

For more information and resources about National Preparedness Month, visit [ready.gov/september](https://ready.gov/september). Additional resources for [emergency preparedness](#) and [disaster preparedness](#) are available from the NASA Safety Center (NSC) to help you stay safe at home and at work!



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## Upcoming Changes in HVAC Refrigerant Availability



If you work with heating, ventilation, and air conditioning (HVAC) systems, you know that older refrigerants like R-12 (dichlorodifluoromethane) and R-22 (chlorodifluoromethane) can be hard to find these days. That's because, starting in the 1980s, chlorofluorocarbons (CFCs) like R-12 and hydrochlorofluorocarbons (HCFCs) like R-22 were cited as contributing to the size of the Antarctic ozone hole. These ozone-depleting substances (ODSs) were phased out of production to reduce environmental impacts. As such, only reclaimed quantities are available for maintaining systems reliant on them and scarcity makes cost of these chemicals relatively high.

Fortunately, most HVAC equipment owners have transitioned to new equipment using new refrigerants or have found substitutes refrigerants for old systems. However, many newer refrigerants fall into a class of compounds known as hydrofluorocarbons (HFCs). Unlike their predecessors, HFCs are not ODS, but many are potent greenhouse gases (GHGs) which greatly exceed the global-warming potential of carbon dioxide, some by a factor of several thousand!

As a result of concerns regarding the impacts of these chemicals on the GHG load in the atmosphere, both international and United States efforts are requiring a phase-down (not phase-out) of HFC production and use from baseline levels in 2011-2013 to 15% in 2036. This means that HFCs, which are very common in HVAC systems today, will become less readily available and, as a result, possibly more expensive in the next fifteen years.

So what is a facilities manager or HVAC system owner or operator supposed to do with this information?



### Plan ahead

If your system uses legacy CFCs or HCFCs, you are already facing a shortage of replacement refrigerant *and* may be subject to strict regulatory requirements for leak rate logging and follow-up actions. If you choose to replace the refrigerant, be aware that typical HFC substitute refrigerants for these systems are also going to be less readily available in the future. You may consider replacing your system with one that can use non-ODS and low- or non-GHG refrigerants like carbon dioxide, propane, isobutane, or ammonia.

If your system currently uses HFCs like R-134a or R-410a, know that you might be paying more for replacement refrigerant over the next fifteen years. Also, keep an eye out for stricter regulations regarding use of HFCs and the availability of low- or non-GHG substitutes for HFCs which may make more sense for reducing financial and compliance liabilities in the upcoming decade.

If you have questions about refrigerant use in HVAC system or in general, please contact Mike Bonsteel at [michael.c.bonsteel@nasa.gov](mailto:michael.c.bonsteel@nasa.gov)