



Residential AC Systems and the Phase-Out of R-22 Refrigerant

HSB, a Munich Re company, is a technology-driven company built on a foundation of specialty insurance, engineering and technology, all working together to drive innovation in a modern world.

This document provides homeowners with important considerations when servicing or maintaining an existing air-conditioning system. It can also help homeowners make informed decisions regarding an insurance claim involving an AC system that uses R-22 refrigerant. Homeowners should always review their actual policy language to understand how covered losses will be valued.

Introduction

The Montreal Protocol, an international environmental agreement, established requirements that began the worldwide phase out of the manufacturing of R-22 refrigerant by 2020. In the United States, the Environmental Protection Agency (EPA) has the power of enforcement for the Protocol.

R-22 production ended in January 2020, but stored and recycled quantities of the refrigerant will be available for the repair of equipment from vendors for years. Industry experts estimate that there are hundreds of millions of pounds of R-22 available.

R-22 was the refrigerant of choice for residential air conditioning (AC) systems for more than four decades. Unfortunately for the environment, releases of R-22 such as those from leaks, contribute to ozone depletion. In addition, R-22 is a greenhouse gas, the manufacture of which results in a by-product that contributes to global warming.

There will continue to be a large population of existing equipment in service. Although the rated life of an AC unit is 13-15 years, many of these units last well beyond this time.

As the production of R-22 has been phased out, manufacturers of air-conditioning systems are offering equipment that uses other, ozone-friendly refrigerants. Homeowners may be misinformed about the availability of R-22 to service their existing AC systems and heat pumps.

From an insurance claim perspective, if the system is repairable and the repair cost is less than the total system replacement cost, then the claim will be settled based on the lower repair cost. This may involve reviewing the cost of the repair based on existing parts replacement and recharging with the existing higher-cost, R-22 refrigerant. If the insured elects to do a full system replacement rather than the minimum repair, the lower repair cost settlement can be used towards the higher total system replacement cost.

Continued Use of R-22 Systems

Continued use of R-22 systems is acceptable and meets Federal and State Codes. However, some local Codes may prohibit its use. The cost of repairing or servicing an existing system will likely cost the least upfront, and therefore, match what typical homeowners' policies will reimburse after a covered loss. However, owners may wish to consider other options outside the parameters of insurance reimbursement given the phase-out of R-22 refrigerant.

From a claim-settlement perspective, the lowest cost to reestablish a working AC system should be pursued. This lowest repair cost amount could be used by the insured as a contribution toward a full replacement or upgraded system cost.

After January, 2020, R-22 for system repairs will come from refrigerant reclaimed from "replaced" systems. Refrigerant reclaiming is critical to the world's R-22 refrigeration systems. There may be storage capacity issues with the reclaimed refrigerants, which may increase localized shortages. This could result in increased maintenance costs over time due to decreasing supply including spare parts.

AC systems that fail should be evaluated based on repair rather than replacement costs. Even though the R-22 may cost more per pound, R-22 system parts are typically still available to effect minimum repairs to the system. The contractor should submit the cost to repair the R-22 system even though the contractor and insured may agree that a full system replacement is the best decision. The minimum R-22 system repair cost is needed for the claim-settlement determination. This amount can then be used toward the full system replacement and betterment costs.

Over a period of time, the cost of the R-22 will increase as supply diminishes. This effect will be reflected in a contractor's quoted repair costs versus the full replacement cost of the system.



Conversion of R-22 Systems

A decision to convert the equipment to a new refrigerant will require detailed engineering of the existing system to determine the current and predicted performance.

There are replacement refrigerants available, but each is designed for specific operating conditions. This can result in performance changes of existing equipment and may require equipment modifications. Installers associated with the original equipment should be used for conversions and for ongoing service contracts.

The replacement refrigerants are interim solutions that allow older systems to remain in operation with lower upfront costs compared to new equipment, even though there may be slight performance reductions.

As long as R-22 is still available and cost effective, staying with the original R-22 refrigerant and available repair components should result in the least cost for claims settlement.

Replacement of R-22 Systems

A decision to replace the equipment can be made for a number of reasons. When the equipment is near the end of its useful life, a conversion will not be cost effective over the long term. When existing capacity is marginal, new properly-sized equipment may be necessary to correct design deficiencies. Eventually, all older equipment requires replacement due to end-of-life wear and tear. New equipment typically has the added benefit of increased energy efficiency.

Many of these considerations, if acted upon, will result in the betterment of the entire AC system for the insured. They will not typically be the least expensive option to return the AC system to its pre-failure condition.

Next Steps

The homeowner should consider the next steps to take based on the existing AC system installation and future needs. The strategy should consider the likelihood of an unexpected equipment failure. The owner may decide to convert or replace the equipment based on comfort, performance and financial considerations. The final decisions rest with the homeowner.

The next steps should consider:

- How long the R-22 equipment remains in service (age, efficiency, maintenance costs)?
- How much time, money and effort is involved in a system conversion?
- What are the risks for local service, parts and supplies of R-22?
- What are the overall costs and benefits of a complete system “replacement” versus a short-term conversion and eventual system replacement?

Many of these questions are for long-term decision-making regarding the existing AC equipment. These questions do not directly relate to determining the least insurance claim cost to re-establish the failed AC system to its pre-failure condition.

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