



**ODS/HFC reclamation and destruction technologies - Insights into the new
COPA publication**
10 January 2024



3. Q&A All participants

QUESTIONS ON COST CONSIDERATIONS

Is subcooling the most expensive method?

The operating costs of subcooling are the highest of the three recovery methods due to its high energy consumption. Building costs may vary from case to case. However, as subcooling is a state-of-the-art technology, its building costs are also high compared to the other technologies.

What are the charges for recovering refrigerants in different countries?

As a source for this information, UNEP/TEAP did a study in 2009 where they calculated all the costs of collection, recovery, transport and destruction of refrigerants in the RAC sectors. This can be used as a guide. Reference: UNDP and TEAP (2009). UNEP Technology and Economic Assessment Panel Task Force Decision XX/7-Phase 2 Report "Environmentally Sound Management of Banks of Ozone Depleting Substances."

What is the estimated cost of reclaimed R-22 compared to the cost of virgin R-22?

Prices for R-22 in Chile and the UAE can be found in the [COPA study](#) "ODS/HFC Reclamation and Destruction Technologies A review for Article 5 Countries".

If the cost of reclaimed refrigerant is higher than the virgin chemical, do we consider reclamation as a viable solution?

It depends, there is proof that from a financial point of view reclamation can be viable. See the examples in pages 19-23 of the [COPA study](#) "ODS/HFC Reclamation and Destruction Technologies A review for Article 5 Countries". Reclamation also makes sense from an environmental point of view. It is also important to consider that the prices of virgin HCFCs and HFCs are expected to rise because of the phase-out and phase-down plans. There are also regulations, such as import bans, that can make the reclaimed refrigerant more competitive. On the other hand, some companies might be interested in paying more money for a refrigerant that is reclaimed if they want to achieve "carbon neutrality" for example and are looked to have label on their products that certifies this.

For more information have a look at the [ODS/HFC Reclamation and Destruction Technologies A review for Article 5 Countries by COPA 2023](#).

QUESTIONS ON FINANCIAL VIABILITY AND BUSINESS STRATEGY:

Do the prices indicated in slide number 17 cover the recovery, transportation, storage, handling, and other associated costs?

Yes, this is the selling price, so it includes any costs carried out by the reclamation centers. You can find more information on page 20 and 21 of the [COPA study](#) "ODS/HFC Reclamation and Destruction Technologies A review for Article 5 Countries"

If reclamation is not financially viable, how do you suggest the establishment of reclamation centres in the private sector?

Reclamation can be economically viable. However, in countries where there are no external producer responsibility (EPR) schemes or other regulations to ensure the collection and recovery of refrigerants, the private sector will have to go the extra mile to find enough refrigerant for reclamation. As for the selling prices of refrigerants, these are expected to increase as a result of the phase-down and phase-out plans. In addition, some companies may be interested in paying more for a reclaimed refrigerant if, for example, they want to achieve "carbon neutrality" and have a label on their products certifying this.

A full list of recommendations for reclamation centres can be found on page 21,22 and 23 of the [COPA study](#) "ODS/HFC Reclamation and Destruction Technologies A review for Article 5 Countries".

What is the current value of Carbon Credits, and is it a financially viable option?

The price for carbon credits varies from country to country, you check some of them here: <https://carboncredits.com/carbon-prices-today/>. Yes, in some cases it is a viable option, companies like [Recoolit](#) finance destruction of ODS/HFCs with carbon credits.

For more information have a look at the [ODS/HFC Reclamation and Destruction Technologies A review for Article 5 Countries by COPA 2023](#).

QUESTIONS ON ENVIRONMENTAL IMPACT AND TECHNOLOGY:

Do you think there is a design and operation problem with using reclaimed refrigerants?

No, there isn't. If the standards are followed, reclaimed refrigerant is as good as new refrigerant from an operational point of view. See the *AHRI. 2016. Standard for Specifications for Refrigerants Standard 700*.

What technology would you suggest to reclaim refrigerants for High Ambient Temperature (HAT) countries?

Distillation is supposed to be the best technology for a reclaim center to start with as it is commercially available and easy to operate,. R-22 and R-134a are still the most common refrigerants in most countries. Adsorption is the most desired technology. However, it is difficult to find or build and requires a high level of expertise, especially for the adsorbent materials. A full list of recommendations for reclamation centres and more about the reclamation technologies can be found on pages 16-23 of the [COPA study](#) "ODS/HFC Reclamation and Destruction Technologies A review for Article 5 Countries".

QUESTIONS ON POLICY AND CERTIFICATION:

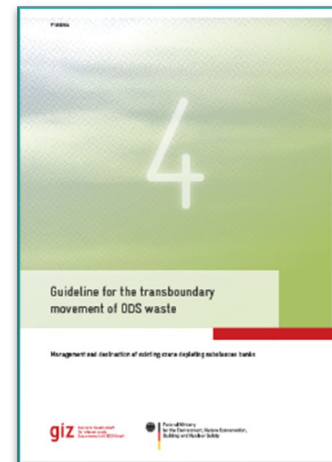
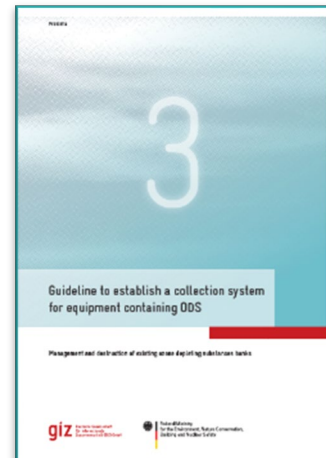
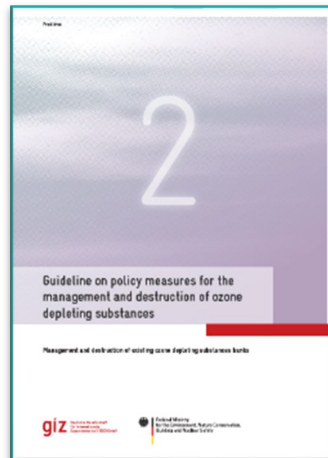
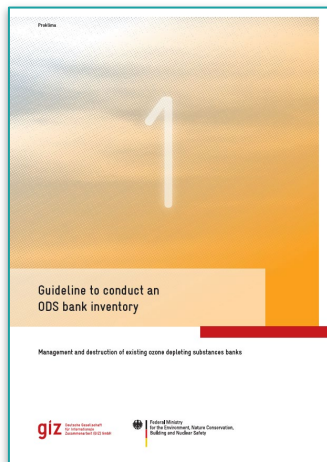
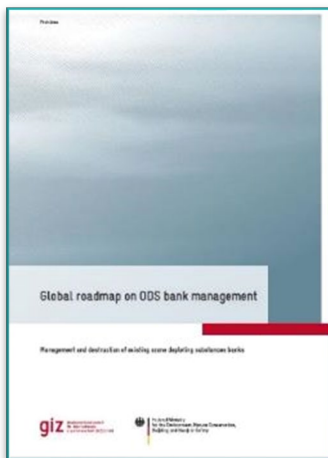
Do you suggest checking (certifying) purity after reclaim?

Checking purity after reclaim is recommended. In countries such as the USA and in the EU refrigerant is only considered reclaimed if it reaches 99.5% of purity. Selling certified reclaimed refrigerant helps businesses trust the product and get used to using reclaimed refrigerant. See HARH guidelines. See the *AHRI. 2016. Standard for Specifications for Refrigerants Standard 700*.

A full list of recommendations for reclamation centres can be found on page 21, 22 and 23 in the [COPA study](#) "ODS/HFC Reclamation and Destruction Technologies A review for Article 5 Countries".

For more information have a look at the [ODS/HFC Reclamation and Destruction Technologies A review for Article 5 Countries by COPA 2023](#)

RELEVANT PUBLICATIONS AND TOOLS



Global roadmap on
ODS bank
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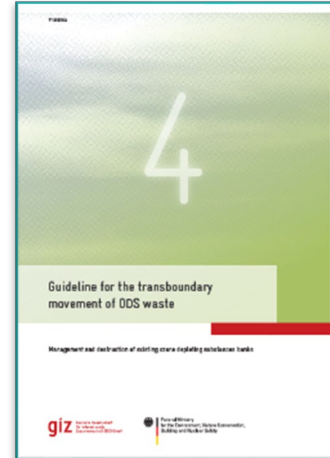
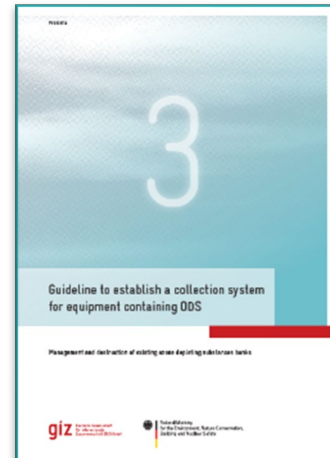
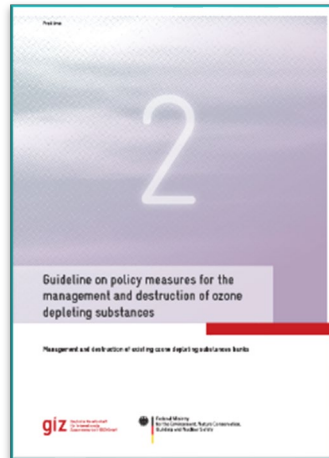
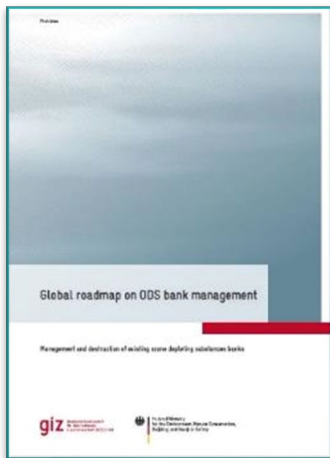
Guideline to conduct
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Guideline on policy
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destruction of ODS
([Download](#))

Guideline to establish
a collection system
for equipment
containing ODS
([Download](#))

Guideline for the
transboundary
movement of ODS
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Global roadmap on ODS bank management ([Download](#))

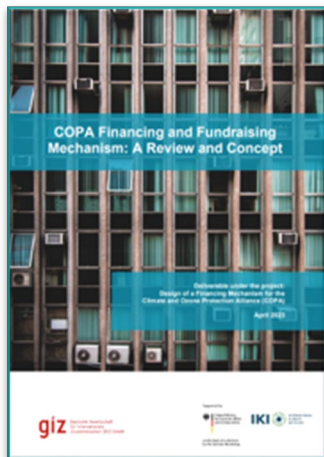
Updated Guideline to conduct an ODS and HFC bank inventory ([Download](#))

Guideline on policy measures for the management and destruction of ODS ([Download](#))

Guideline to establish a collection system for equipment containing ODS ([Download](#))

Guideline for the transboundary movement of ODS waste ([Download](#))

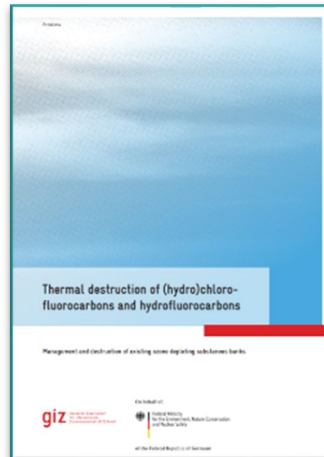
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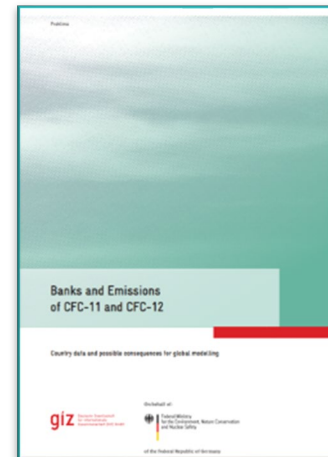
Design of a Financing Mechanism for the Climate and Ozone Protection Alliance
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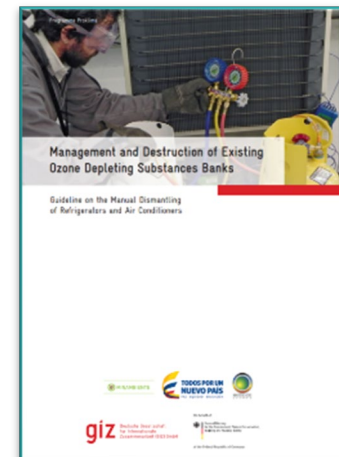
Global Banks of ozone depleting substances.
A country-level estimate [\(Download\)](#)



Thermal destruction of (H)CFCs and HFCs
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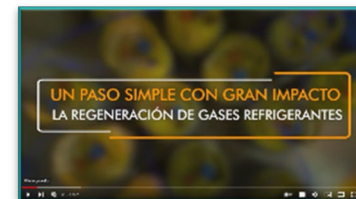
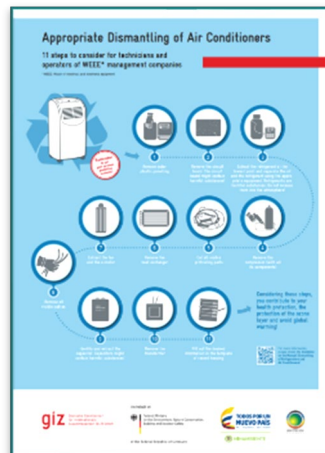
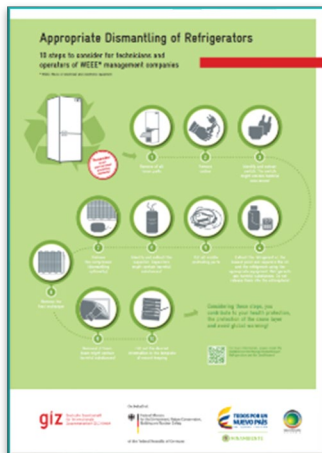


Banks and Emissions of CFC-11 and CFC-12
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Guideline on the Manual Dismantling of Refrigerators and Air Conditioners
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Poster: Appropriate Dismantling of Refrigerators ([Download](#))

Poster: Appropriate Dismantling of Air Conditioners ([Download](#))

Poster: Key processes to manage ODS banks ([Download](#))

Video: ODS Banks – An unseen threat ([Download](#))

Video: A simple step with great impact: The reclaim process of refrigerants ([Download](#))



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