

Circularity is more than recycling

For some, circularity means being able to recycle the material. But the very [definition of a circular economy](#), according to the European Parliament, describes a production and consumption model where existing materials and products are shared, rented, reused, repaired, refurbished and recycled for as long as possible to create more value. In this way, the life cycle of products is extended. This is exactly what RESUS offers in heating and cooling systems through early warning and predictive maintenance..

Material Matters - Thomas Rau

Circularity guru Thomas Rau describes on page 86 of his bestseller Material Matters how he looked out the window of his office while some heating contractors dumped a mountain of discarded boilers on the sidewalk from residents who had settled there after him. And he thought: "This has to be different". There is no reason why central heating boilers should "wear out" if the conditions (the installation) under which the boiler is operated are normal and correct, after all there is no intrinsic wear or aging.

What do the standards and guidelines say about this?

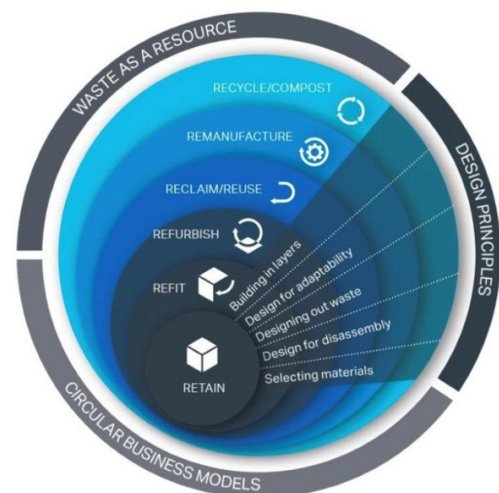
<https://www.europarl.europa.eu/news/en/headlines/economy/20201119STO92005/how-to-promote-sustainable-consumption>

What do the scientists say?

Prof. Dr. Marko Hekkert, Professor of Sustainable Innovation at Utrecht University says we need to learn to think differently:

*"Not: Just keep producing, make everything recyclable and thus close the circle. That does not work. It starts with prevention: use as little material as possible ("you don't need a box for a tube of toothpaste"). Then follows **LIFE EXTEND**; only then can we talk about possible recycling."*

In the following model, the RExxxx model of circular thinking was expanded with: RETAIN; This is exactly what RESUS wants to achieve with the Risycor.



SOURCE: Dave Cheshire, Sustainability director at AECOM, Cranfield University, London, UK

Updated: 29/06/2022

In heating and cooling systems with water

it turns out that the expansion tank (especially the flat expansion vesselstanks built into wall hung boilers) often become defective after a few years due to a loss of pre-pressure. Like a bicycle tire, the pressurized gas slowly escapes through the membrane. And it is just this expansion vessel that is responsible for maintaining the pressure and is intended to prevent oxygen from penetrating the system, which causes corrosion sludge and thus shortens the service life of the entire system. The problem of “wear and tear” is actually pre-programmed and nobody does anything about it. Expansion vessels must be checked annually, but in practice this is often not done. Some manufacturers of expansion vessels state in their instructions for use that the pre-pressure must even be checked every six months. But does anyone care? The consequences are disastrous, but only a few in the heating industry seem to be bothered. It never ceases to amaze us how few heating contractors are able to adjust or control the pre-pressure correctly. The “usual way” is to tap the vessel briefly to hear if it sounds dull. This “check” is even less effective than kicking a car tire to see if they still have the correct pressure.

Early warning

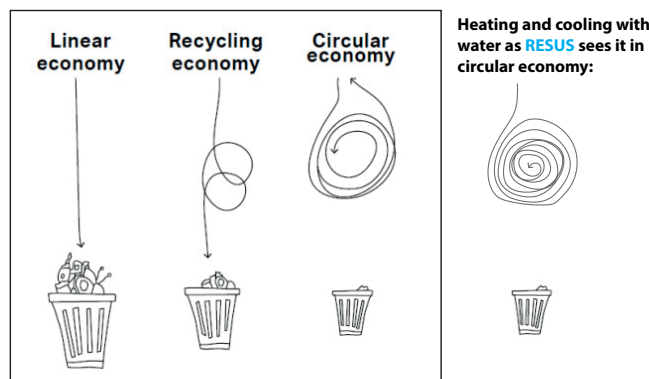
By providing a simple and inexpensive corrosion monitor in every heating system, we ensure that premature “wear and tear” and malfunctions are prevented, similar to how a smoke detector warns of a fire in good time and can thus prevent expensive consequential damage. This look into the future is our contribution to life extension, an excellent circular view.

From “recycle” to “RETAIN”, with RESUS

Of course, from an energetic or ecological point of view, we are not against innovation and renewal. Replacing an old boiler with a modern, much more efficient condensing boiler, a heat pump or innovating with other advanced technologies is of course positive. However, it is important to us that it should not be taken for granted that heating systems “wear out after a while”, that system parts become defective, clogged, or dirty, while this can be avoided without significant additional costs.

RESUS

Is the abbreviation of the terms RELiable and SUStainable. But could equally stand for ‘REtain and SUstain’ We believe that heating systems should be reliable and sustainable and should therefore function trouble-free for as long as possible. However, since some factors such as oxygen entry or uncontrolled water make-up causes increased wear, it makes sense to identify and correct them early on. Isn't it crazy that a radiator or a pipe should wear out? Without dirt, rust or scale involved, a tap, valve, collector or other part of a heating system will not wear out.



From TAKE>MAKE>USE>DISCARD over RE-MAKE>USE-AGAIN to RETAIN
 Modified diagram courtesy of Circular Flanders

Updated: 29/06/2022