

Upcycling e innovazione tecnologica al servizio della circolarità.

D.Panciera – 3M Customer Inspired Innovation Leader

October 2017

- 3M Overview
- Sustainability in 3M
- Upcycling case in Europe

3M at a glance



More than 55,000 products



One third of our sales come from products developed within the past five years



90,000 employees worldwide



Operations in 70 countries and sales into 200



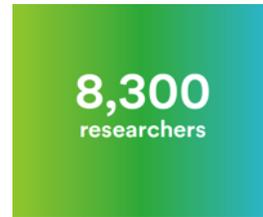
You are likely to come across 3M Science more than 100 times every day



Approximately six per cent of our revenue is reinvested into research and development around the world



Over the past five years we have invested \$8.5 billion in research and development



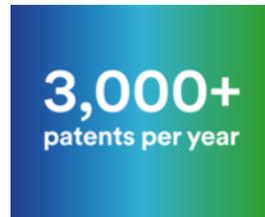
8,300 researchers worldwide



85 research and development facilities spanning 36 countries



54 Customer Innovation Centres around the world

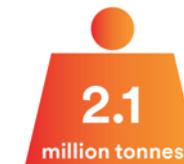


We have 105,000+ registered patents

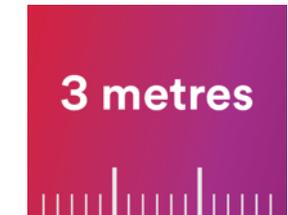
Our scientists amass patents at an average of more than 3,000 per year



200 manufacturing facilities across 38 countries



More than 2.1 million tonnes of pollutants eliminated since 1975



You are rarely more than three metres away from 3M Science

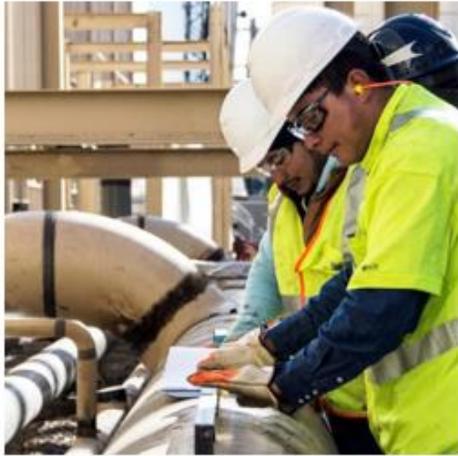
Introduction to our business groups

\$30.3 billion

2015 revenue



Health Care



Safety & Graphics



Industrial



Electronics & Energy



Consumer

- Sustainability in 3M

3M Science.
Applied to Life.™



Raw Materials



Water



Energy & Climate



Health & Safety



Education & Development

Driving sustainability in our own operations



Pollution Prevention Pays

2025 Goals

42 years
Started in 1975

25 percent
Increase renewable energy to 25% of total electricity use

10,000
3P Projects

10 percent
Reduce global water use by an additional 10% indexed to sales

2.1 million
Tons of pollutants prevented

50 percent
Ensure GHG emissions at least 50% below 2002 baseline

\$2 billion
Saved (USD)

250 million tons
Help customers reduce GHG's by 250M tons with 3M products

- Upcycling case in Europe

Why Up-Cycling for perfluoropolymers (PFE)?

Perfluorinated polymers are present in several applications

- cook and backing equipments
- making our cars more efficient and less oil & gas consuming
protect our chemicals plants from harmful substances.
- Waste management is very expensive and not sustainable.

3M (for free) collects used PFE thorough ist plant in Bavaria

Up-Cycling Introduction

Up-Cycling in straight contrast to Recycling is not downgrading the material.

Without compromising the quality of the final outcome products, the Up-Cycling process is transferring production waste or end of life material back into the pure starting materials.

No incineration or disposing of precious raw materials – closing the loop is a true innovation!

Finished Building Summer 2014

Key Facts

- Pilot plant capacity 500 tns/a
- BMU Funding*
- New Technology
- First Fluoropolymer Up-Cycling Plant Worldwide

*Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

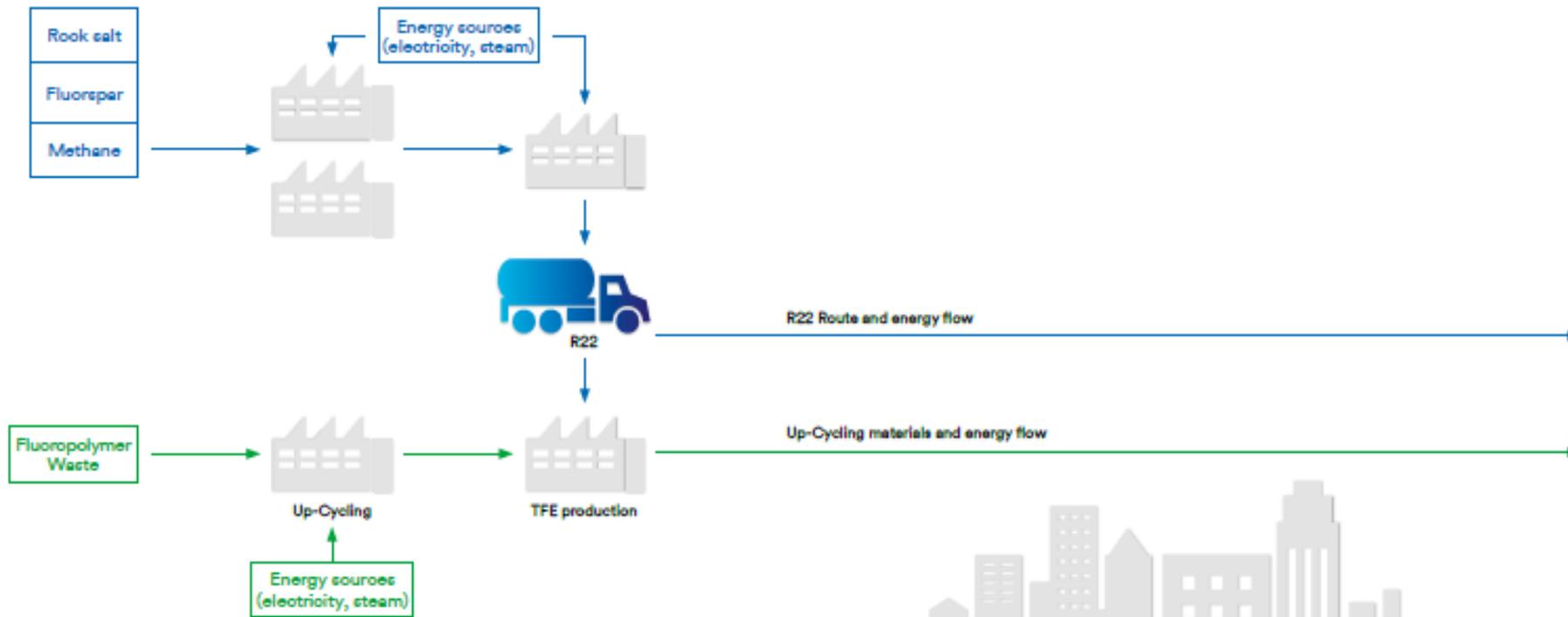
Gefördert durch:



aufgrund eines Beschlusses
des Deutschen Bundestages

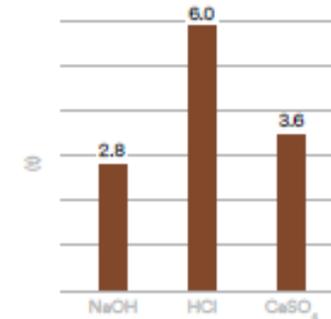


Environmental Savings



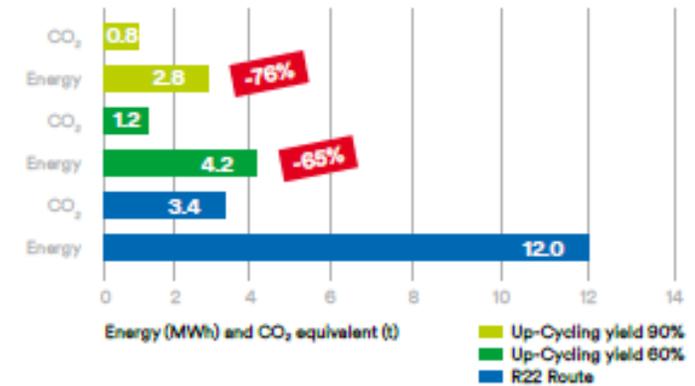
Savings equal the energy demand for 2800 households for one year at full utilisation of the pilot plant. The energy demand is based on average consumption per household. Consumption for a 3 Person household provided by German Statistisches Bundesamt.

Waste stream out of the R22 Route



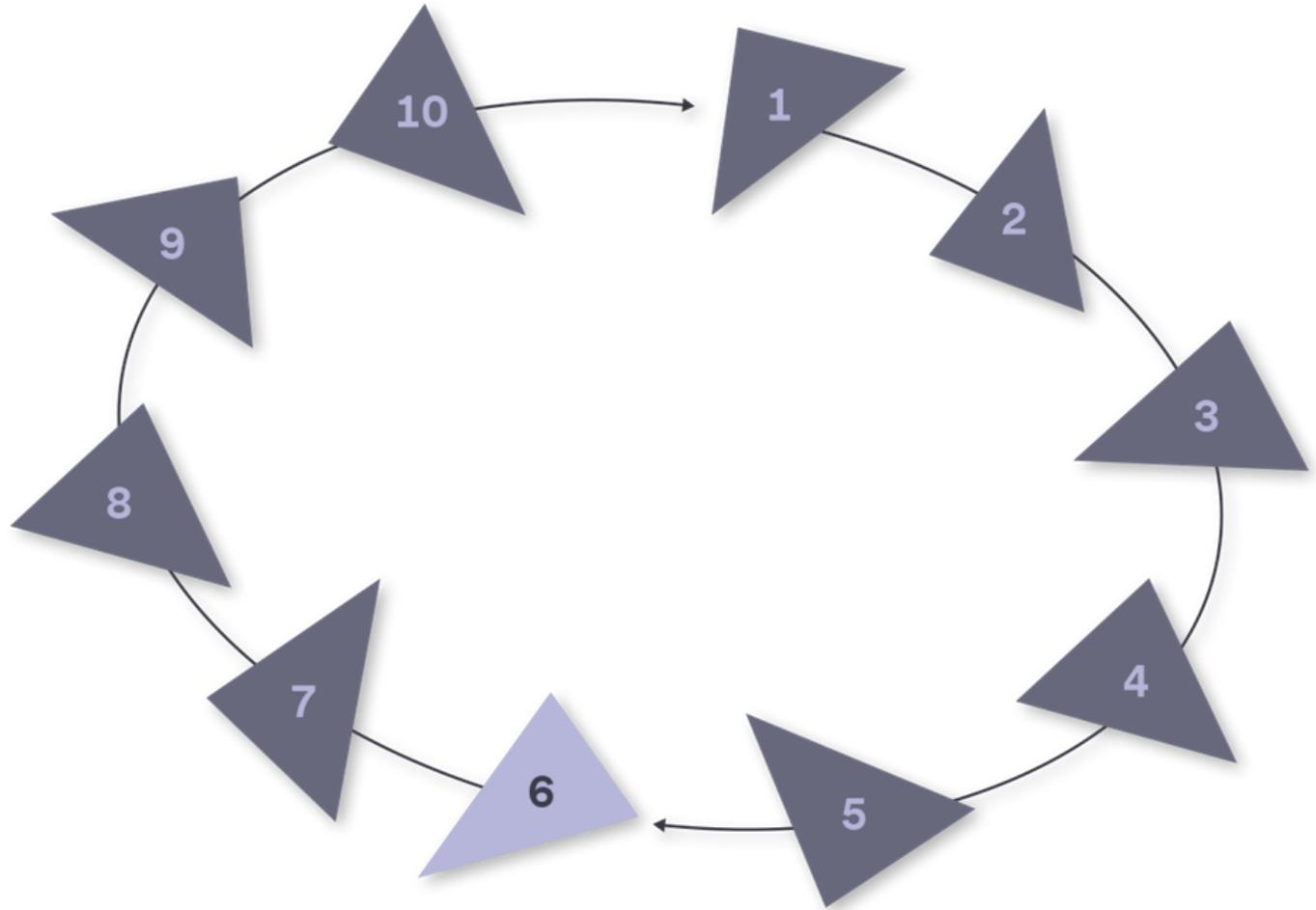
Based on the production of 1t of TFE with an energy requirement of 12 MWh

Comparison R22 Route vs. Up-Cycling



Logistics & Contribution

1. Contact with Dyneon initiated
2. Waste declaration form from waste producer with photo
3. Review of information by Dyneon
4. Samples requested for reference testing
5. Testing and analysis of samples by Dyneon
6. Feedback – possible assumption of waste fraction
7. Planning – coordination of logistics required
8. Packing and transport
9. Processing
10. Record of disposal for the waste producer



To manage your PFE upcycling please refer to:

Ina Vrancken

Global Business Development Manager

3D Printing with FP

Dyneon GmbH

3M Advanced Materials Division



Carl-Schurz-Str.1| D-41453 Neuss

Tel.: +49 (0) 2131 14 3382

Mobil: +49 (0) 171 307 1358

ivrancken@mmm.com | www.Dyneon.eu

Davide Panciera

Customer Inspired Innovation Leader

3M Italia srl, via Norberto Bobbio, 21

20096 Pioltello - MI



Office: +39 02 70352047 | Mobile: +39 335 6759651

dpanciera1@mmm.com | www.3M.it