



What's “Greener” Than A Plant?

How FR3™ natural ester helps companies meet their sustainability goals

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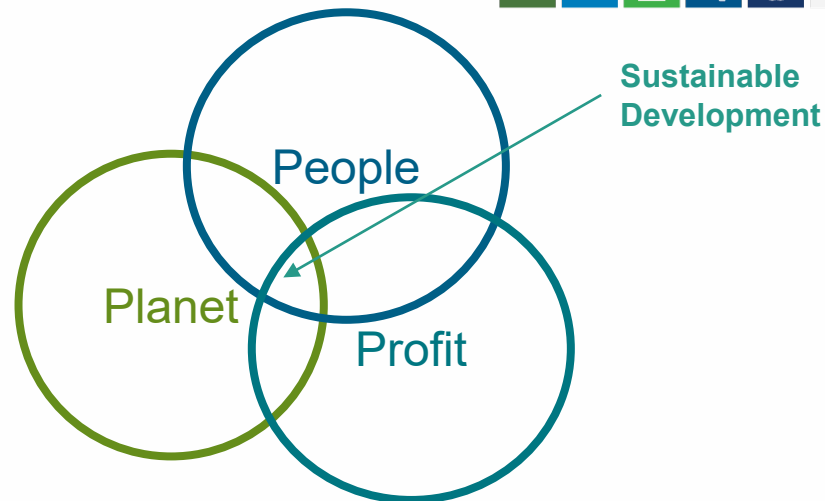


We need to act now

We have a global responsibility to look after our planet

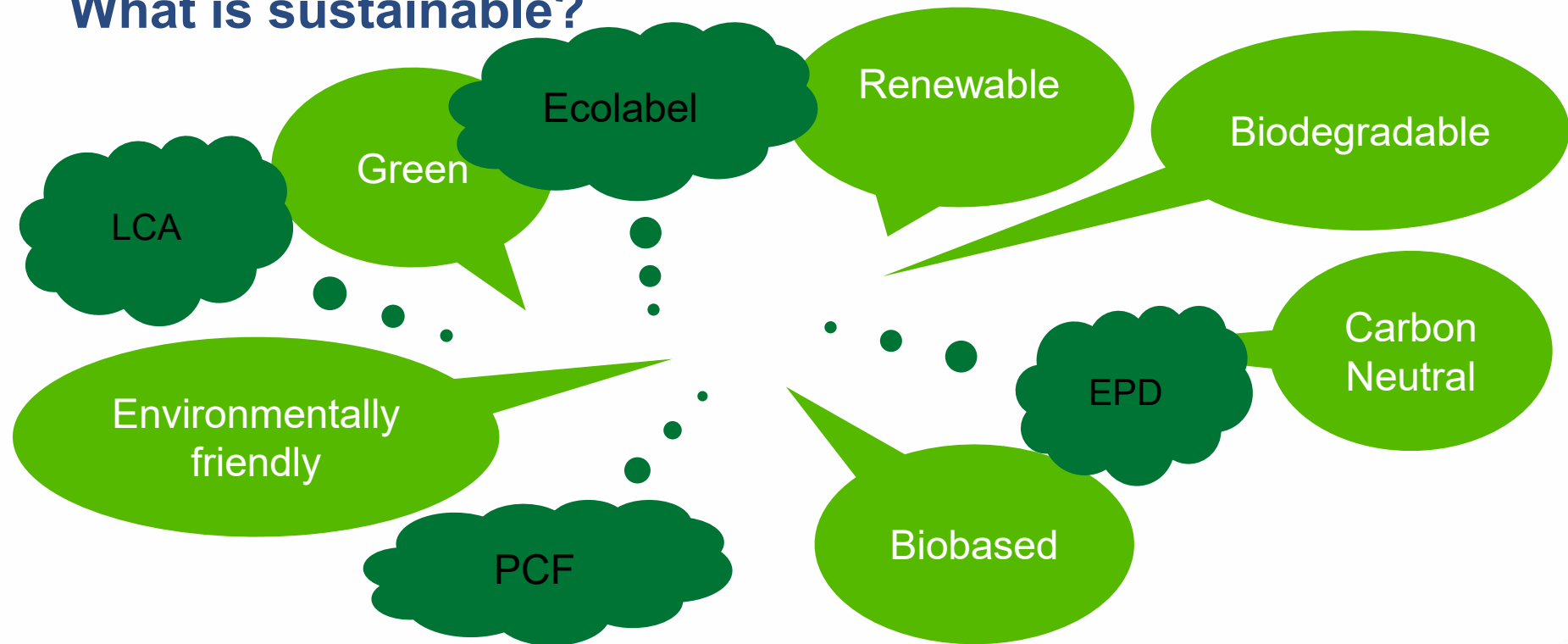


SUSTAINABLE DEVELOPMENT GOALS





What is sustainable?





What is sustainable?



Protecting ecosystems



Enhancing operational human health and safety



Decarbonization



Compacting (saving materials)



Increasing efficiency



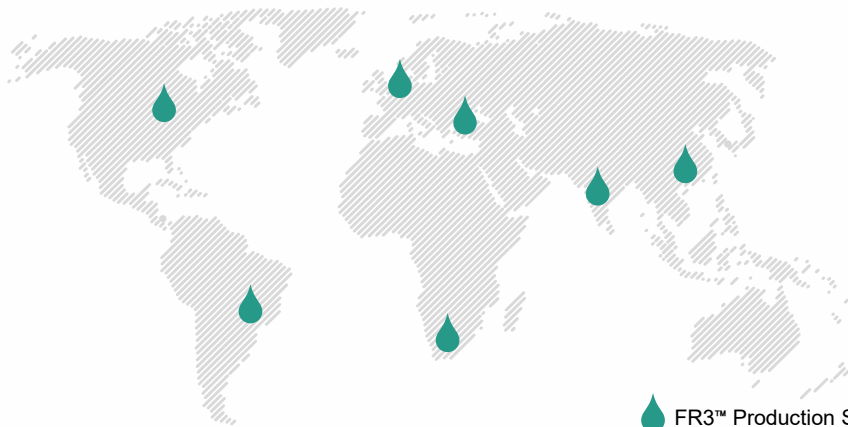
Circular economy





FR3 Fluid: the original, most trusted and proven natural ester

Tested and proven. Millions of times and counting.



 FR3™ Production Sites

25+
YEARS

3+
MILLION
installations

0
FIRES
reported

STANDARDS IN PLACE



All voltage classes and transformer types. All traditional tests applicable, with same hardware.



Environment and Human Safety

FR3 proven and confirmed facts



Non-toxic in soil, water, and
to humans & animals

Method: OECD 203 & 420

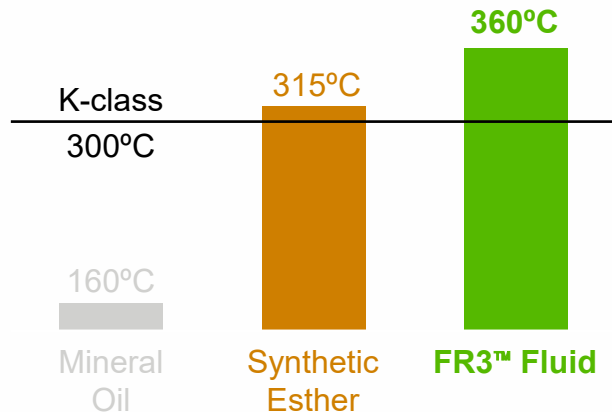


100% biodegradable
in as little as 10 days

Method: EPA OPPTS 835.3100 & 835.3110



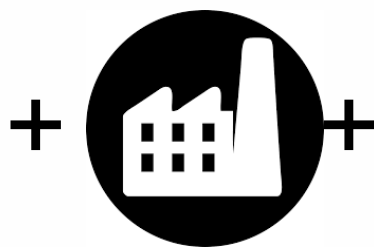
Highest levels of fire safety





GHG emissions of plant-based products:

Biogenic Effect





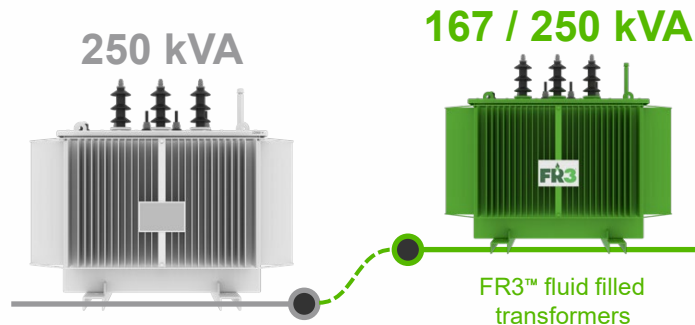
Enabling Compacting and Increased Efficiency



Up to
30% more loading capacity, so
up to 20% of materials saving



Up to
1.6X – 3.9X Longer
Transformer Life



Less Waste





End of life and circularity

There are many possible avenues to use FR3 at the end of transformer's lifetime:

- as a transformer dielectric fluid
- recycled for other applications

But...

Recycling is not eliminating the impact created by virgin product



Raw Material Type

- Plant-based (less process), renewable (can come back)
- Less Toxic (less contamination) / Biodegradable

Less Quantity

- Can I use less materials by making it smaller/lighter
- Can I mix materials / reuse materials

Lower Production Intensity

- Less Energy Use
- Less “damage” (i.e. explosion, water use, mitigation etc.)

Less Waste

- Extend life of a unit / Reuse a unit
- Recycle – After life alternative uses





TRANSFORMERS MAGAZINE'S
INDUSTRY NAVIGATOR

SUSTAINABILITY AND DIGITALIZATION

Thank you

Name

Date 2023

