



TRANSFORMERS MAGAZINE'S  
**INDUSTRY NAVIGATOR**

## SUSTAINABILITY AND DIGITALIZATION

# The role of ester fluids in the sustainable, safe transformers and power networks of tomorrow

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7<sup>th</sup> June 2023





# [ MIDEL<sup>®</sup> ]

**SAFETY INSIDE**





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## SUSTAINABILITY INSIDE





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**SUSTAINABILITY INSIDE**

# 1



# 3





## Sustainability and Synthetic Esters

“

~~Synthetic esters are not as green  
as natural esters, since they're  
made from petroleum products.~~

”

- Anon.



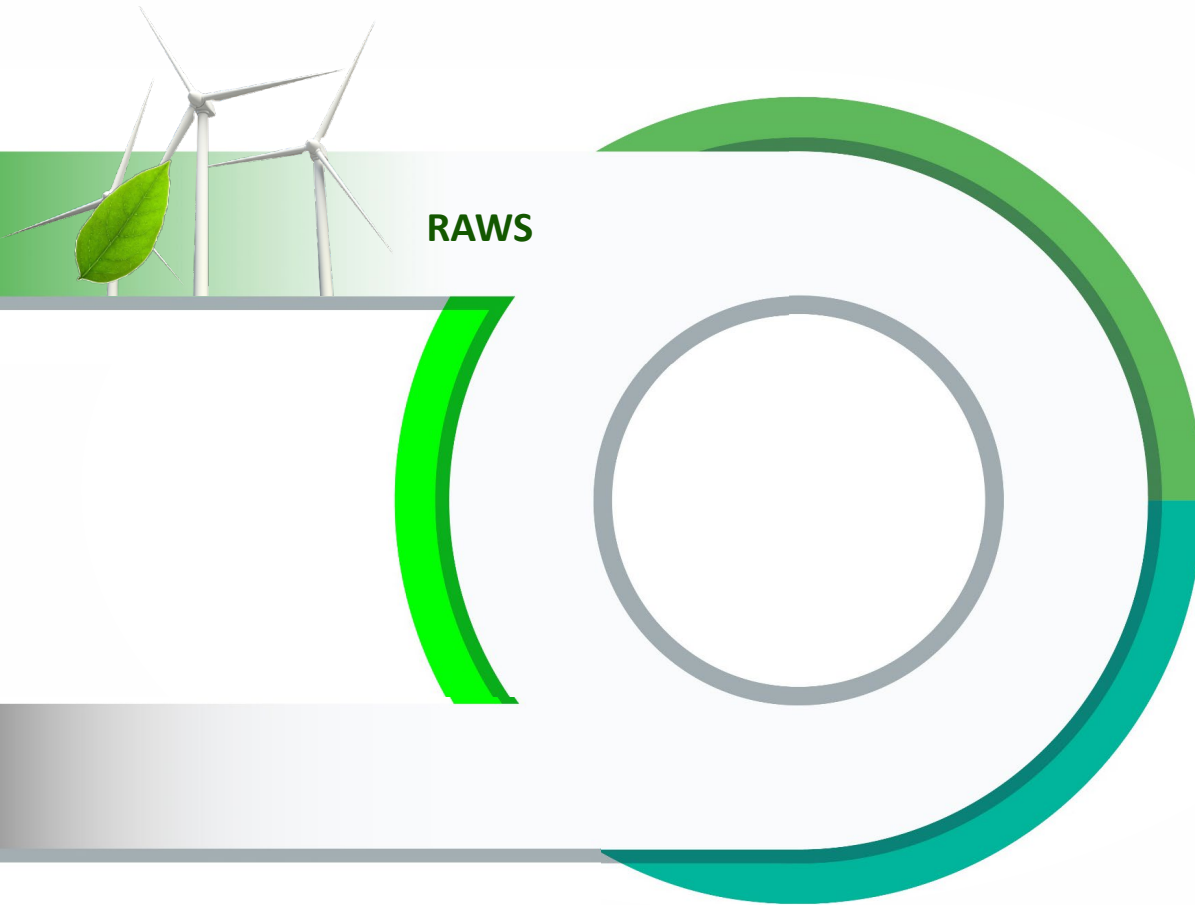


## Responsible Sourcing

- Transition from fossil to climate neutral
- Avoids deforestation
- Minimise competition with food crops
- Use of renewable energy

- ✓ MIDEL 7131 is already manufactured from sustainable sources (plant and waste), as well as fossil
- ✓ If MIDEL 7131 was only manufactured using the currently used plant and waste raw materials:
  - Bio-carbon content would be greater than 70%\*
  - Product Carbon Footprint would be approaching zero\*

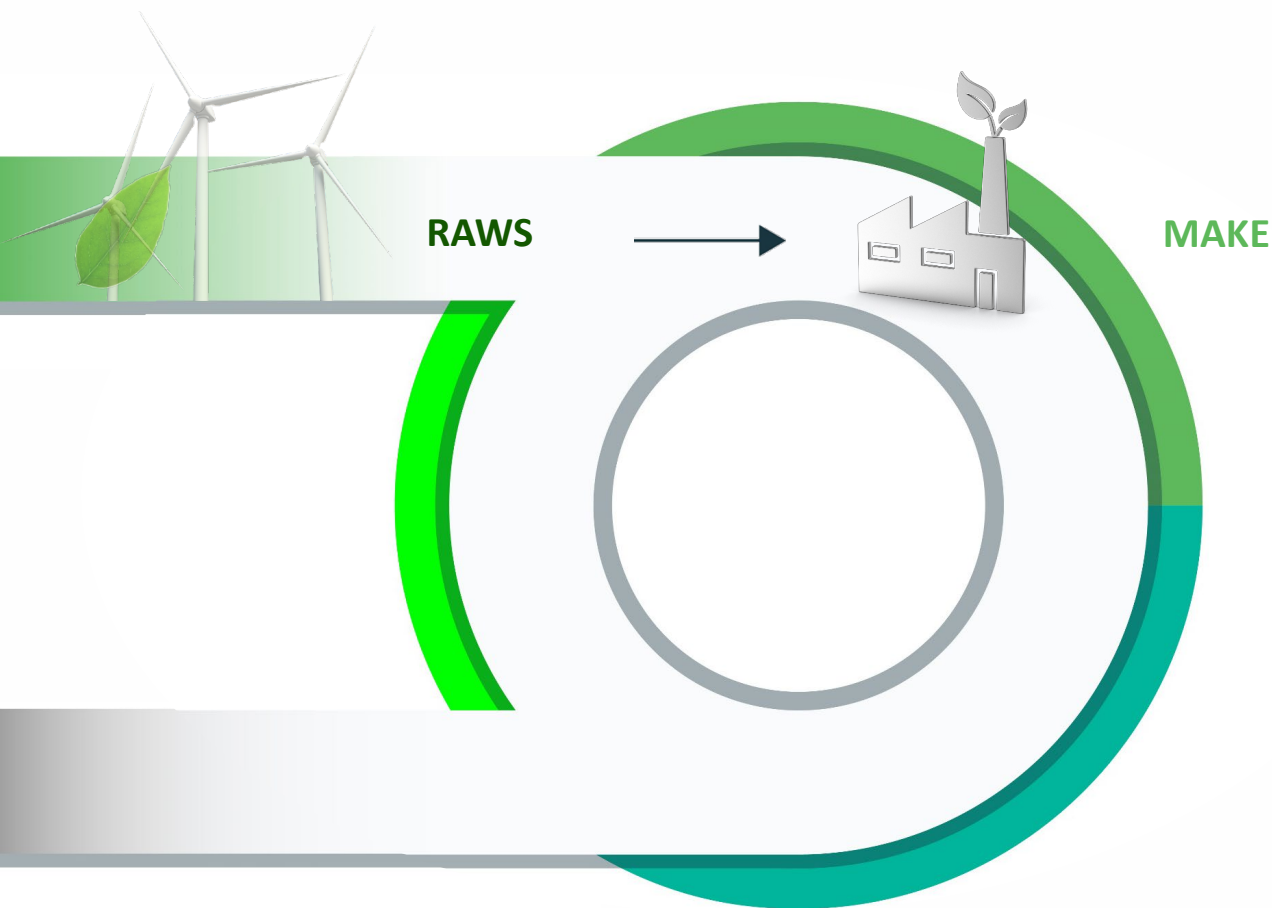
*Uncertified analysis\**





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“

*Even though we've always embraced sustainability, in the past year we have adopted a more robust structure to better direct our future efforts.*

”

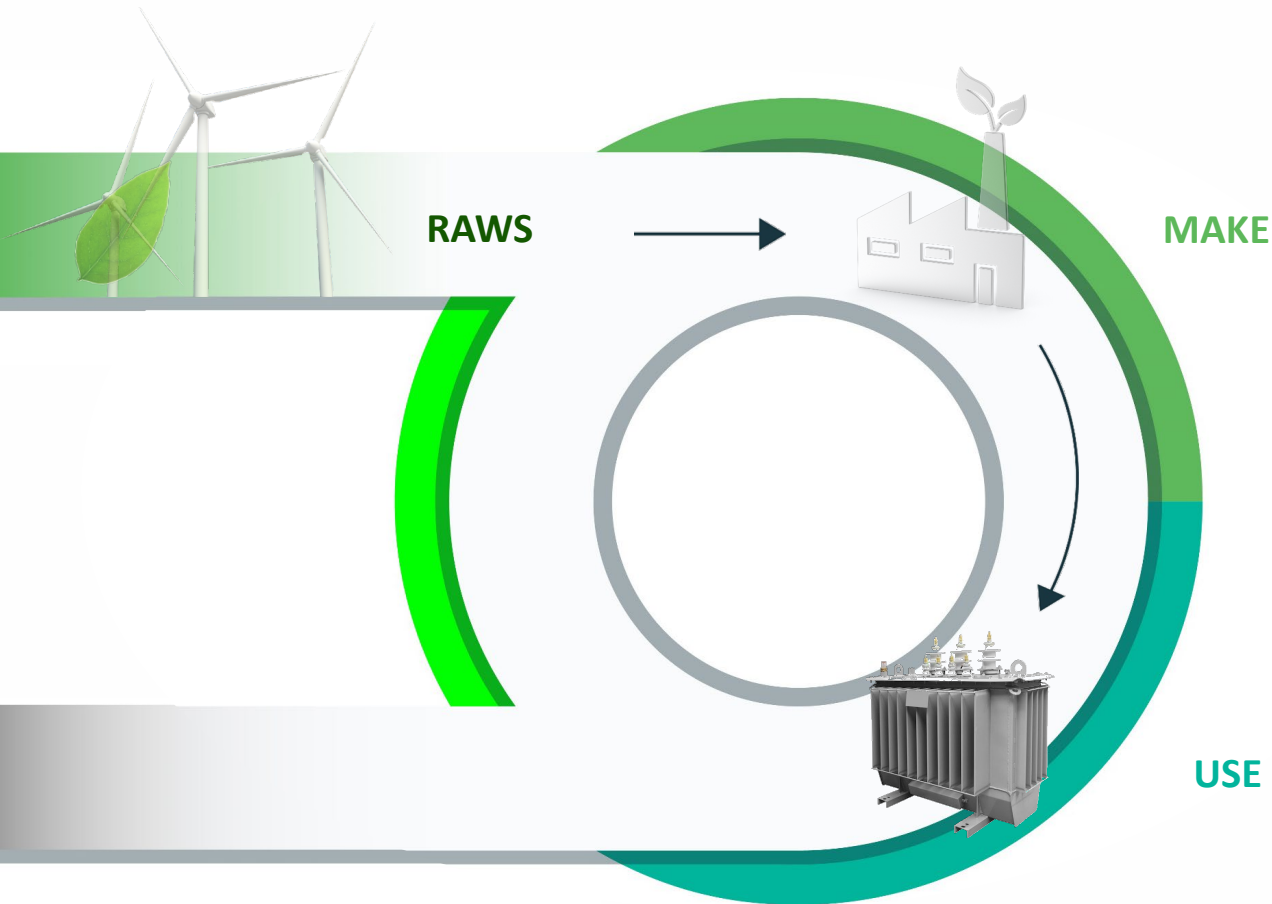
*Giles Salt  
CEO, M&I Materials*







- **Energy Consumption:** 100% of electricity supplied to site from renewable sources
- **30% by 2030:** Net carbon reduction (Scope 1 & 2)
- **Waste reduction:** Reduce Hazardous, Non-hazardous waste per tonne by 5% YOY

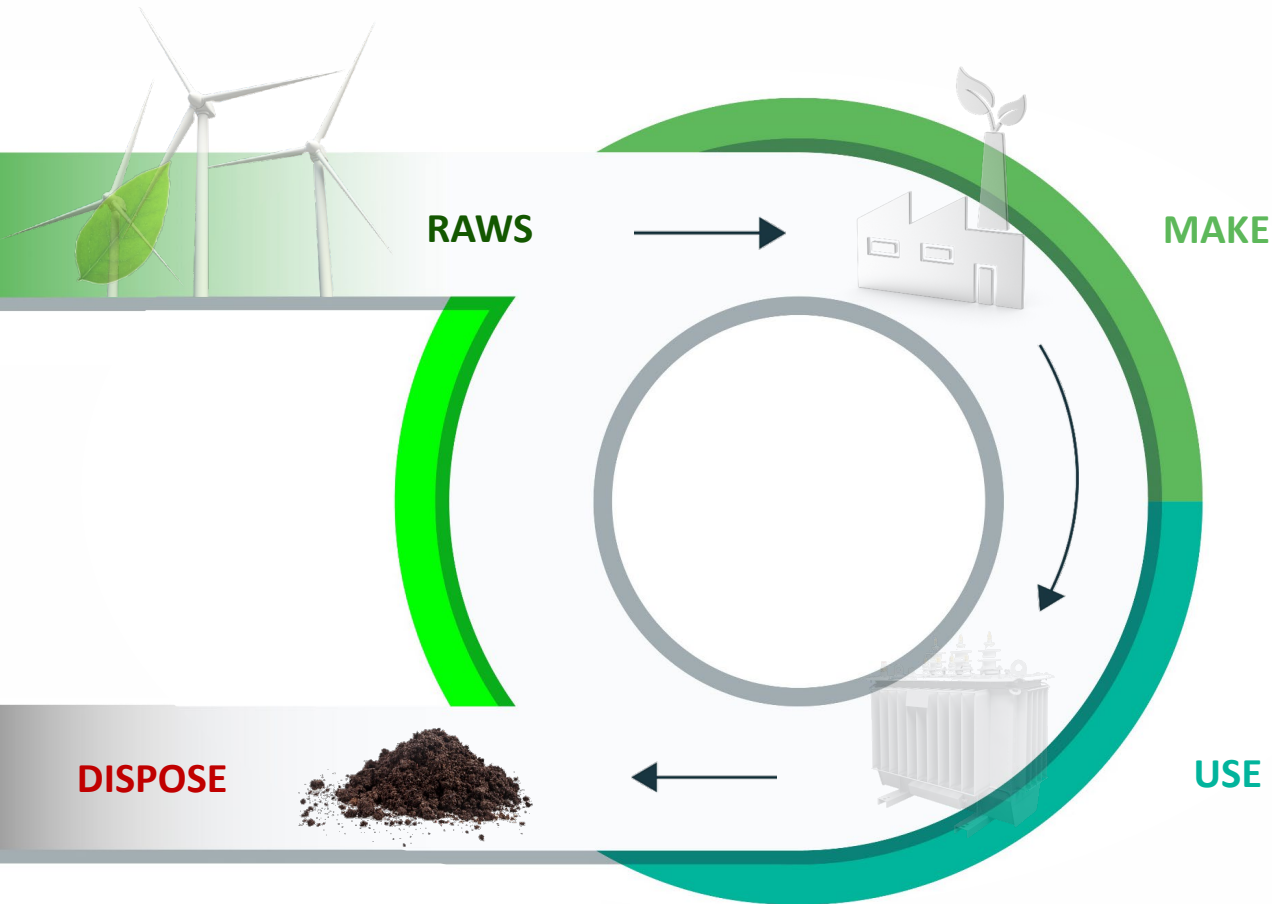


## Zero Harm

- ✓ Esters reduce fire risk
- ✓ Esters extend asset life
- ✓ Esters reduce environmental risk
- ✓ Esters enable substation innovation







## Typical End of Life Fluid Options

- Composting
- Bitumen/asphalt flux
- Lubricants feedstock
- Conversion to bio-fuel
- Incineration





# Waste Management Hierarchy

## Transformer Fluids

### Fluid waste is completely avoided

Can remain in-service *without intervention*.

### Fluid is refurbished/regenerated

End of use fluid is reclaimed, regenerated and put back into service.

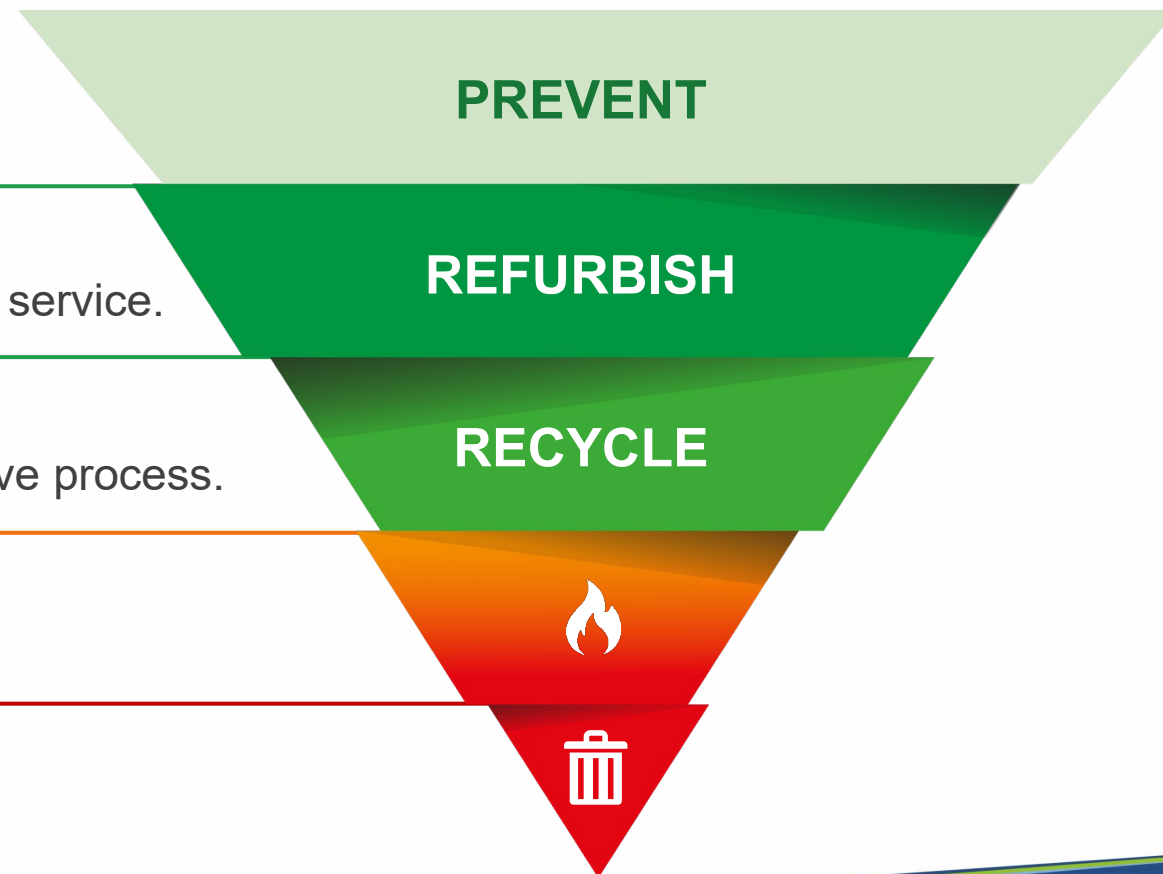
### Fluid is recycled

Back to constituent raw materials through an energy-intensive process.

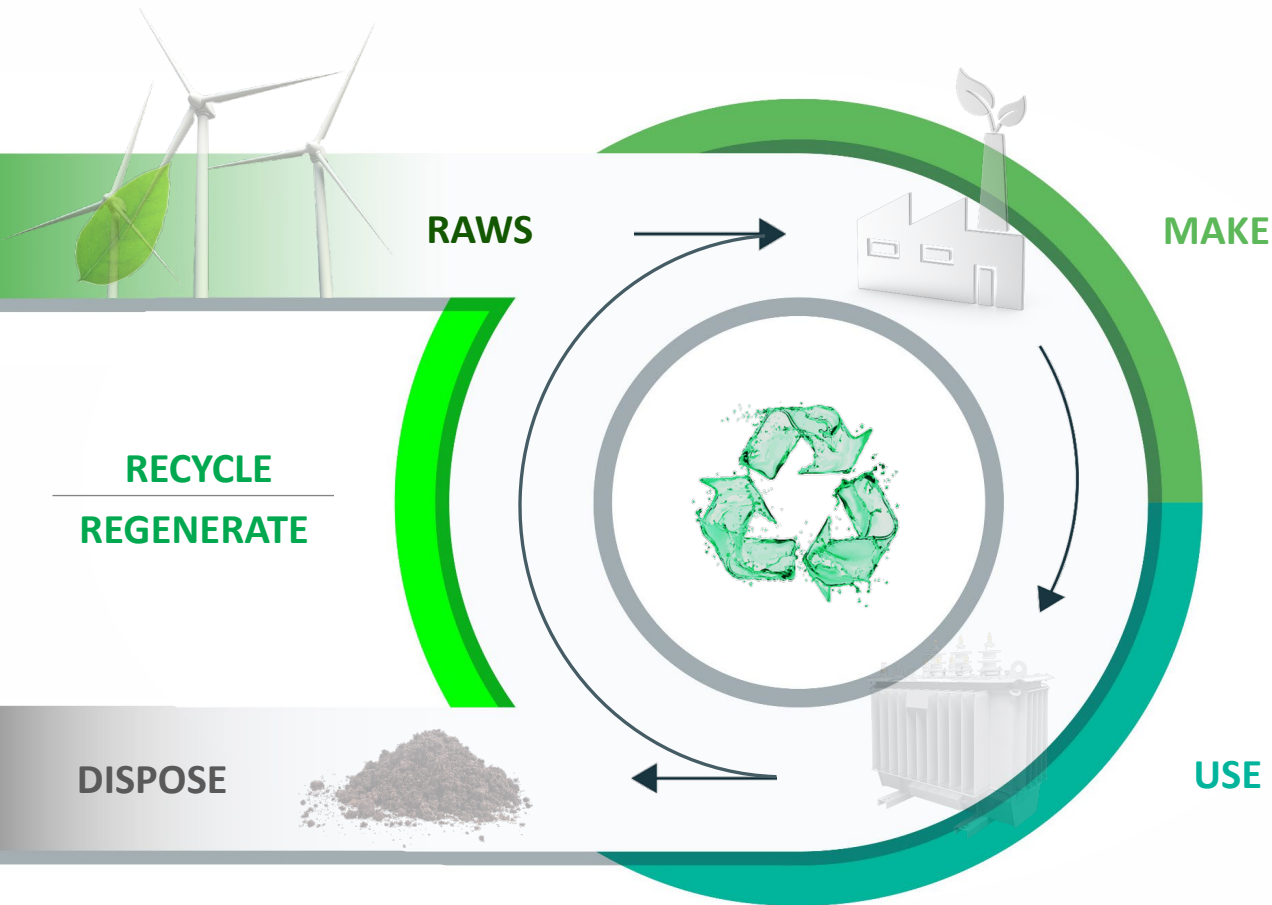
### Energy recovery/incineration

End of life fluid is incinerated

### Fluid disposal (landfill)







## Unlike natural esters, Synthetic Esters can be...

- ✓ Recycled to reduce raw material consumption
- ✓ Reclaimed and regenerated





# MIDEL Regen™

The world's first regenerated ester transformer fluid







## The New MIDEL Ester Range

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MIDEL eN 1215



SOYBEAN

MIDEL eN 1204



RAPESEED

MIDEL 7131



SYNTHETIC

MIDEL Regen



SYNTHETIC







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# Thank you | Questions & Answers

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