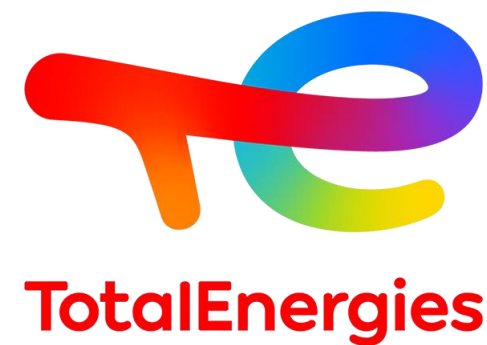
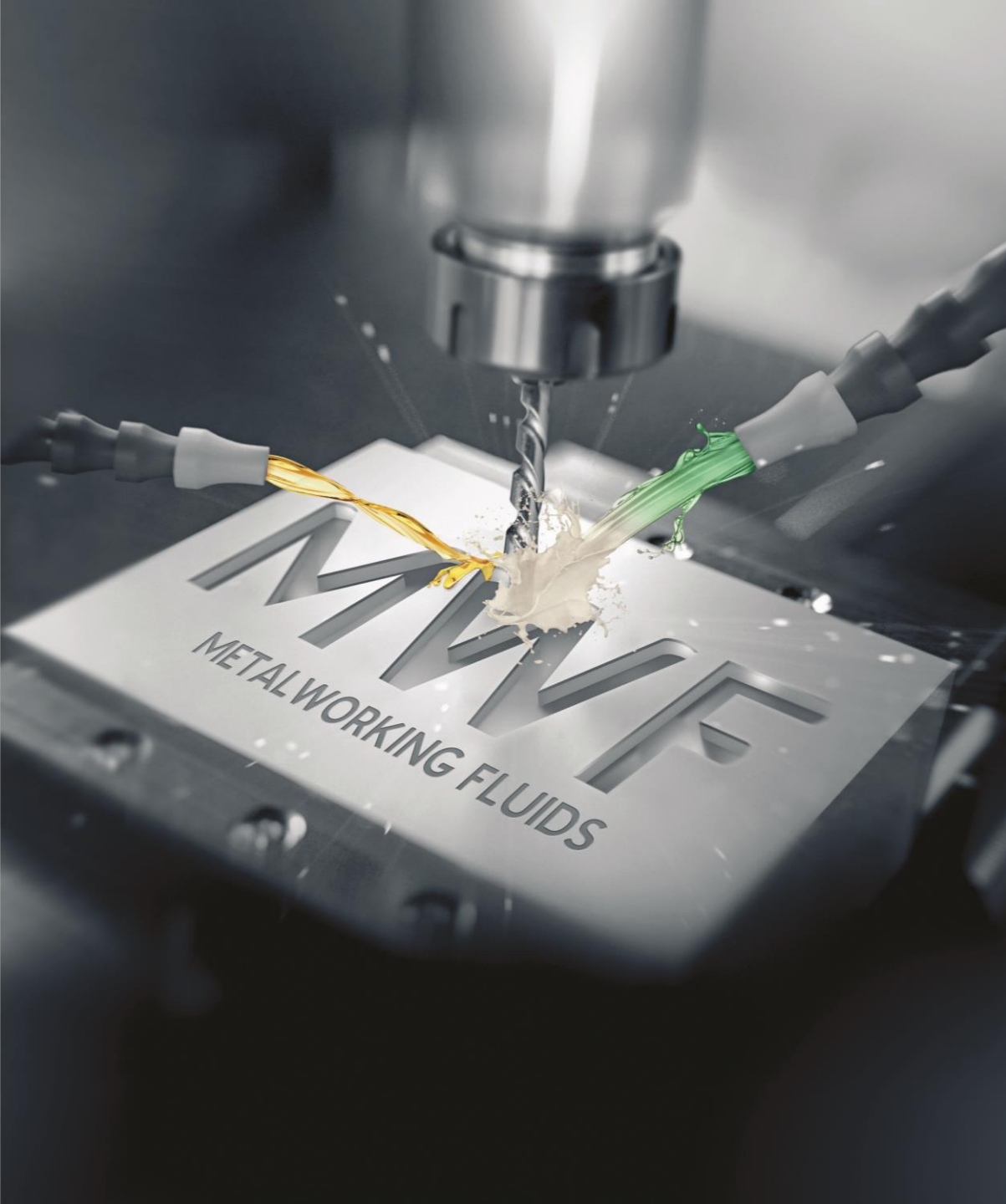




# Committed to HSE from R&D to Customer use

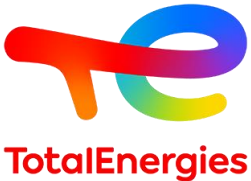
TotalEnergies Lubrifiants  
Metalworking

Dr.-Ing. JM Boissière : Metalworking  
Specialist

# 01.

## Context and strategy

# More and More Regulations



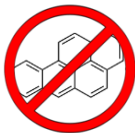
- HAP, benzo(a)pyrene
- Labeling H304
- Boric acid
- Biocides (MIT/...)
- VOCs
- Chlorinated paraffins

Il est recommandé au chef d'entreprise de définir une méthode pour suivre les huiles et ainsi pouvoir assurer une maintenance régulière des bains d'huile (analyses de l'huile ou éventuellement changement des bains). Le chef d'entreprise pourra, si besoin, se rapprocher du médecin du travail, du Service Prévention de la CRAM / CARSAT / CGSS et des Centres Techniques (ex : CETIM, CTDEC...).

A titre d'information, il est indiqué que la concentration en benzo-a-pyrène dans le fluide ne doit pas dépasser 100 µg/kg. Le benzo-a-pyrène est un des hydrocarbures aromatiques polycycliques qui sert de traceur pour ces molécules.

<https://www.ameli.fr/sites/default/files/Documents/31228/document/r451.pdf>

| Product/ingredient name | Identifiers                                                                             | %         | Regulation (EC) No. 1272/2008 [CLP]                                                     | Type        |
|-------------------------|-----------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------|-------------|
| alkanes, C14-17, chloro | REACH #:<br>01-2119519269-33<br>EC: 287-477-0<br>CAS: 85535-85-9<br>Index: 602-095-00-X | ≥25 - ≤50 | Lact., H362<br>Aquatic Acute 1, H400 (M=100)<br>Aquatic Chronic 1, H410 (M=1)<br>EUH066 | [1] [3] [4] |



European Environment Agency

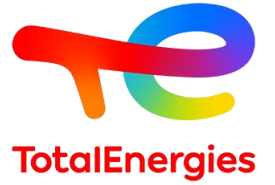
Help Glossary Other EEA Terms VOC

TERM

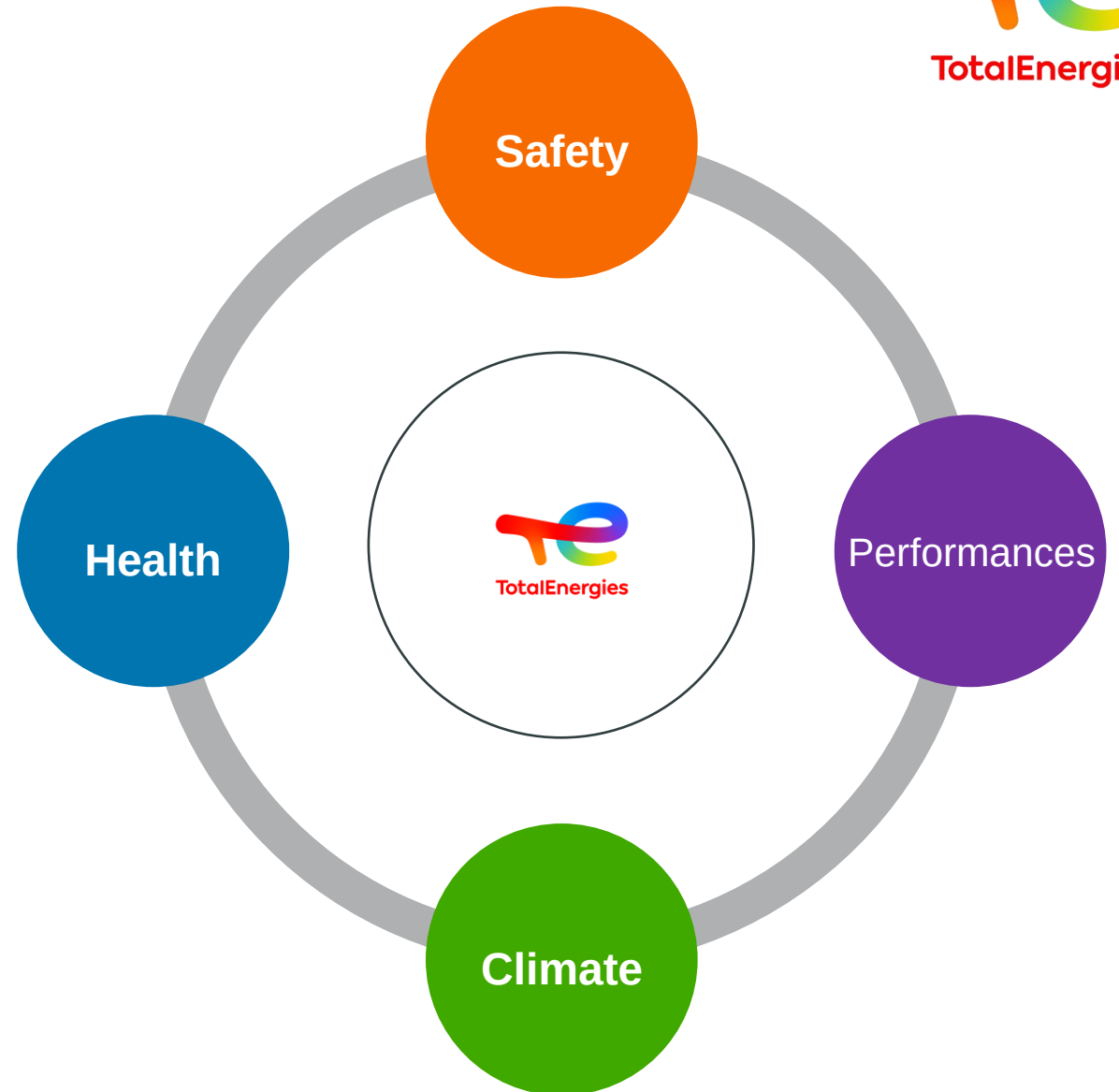
VOC

Abbreviation for Volatile organic compound. Organic chemical compounds that under normal conditions are gaseous or can vaporise and enter the atmosphere. VOCs include such compounds as methane, benzene, xylene, propane and butane. Methane is primarily emitted from agriculture (from ruminants and cultivation), whereas non-methane VOCs (or NMVOCs) are mainly emitted from transportation, industrial processes and use of organic solvents. See also NMVOC.

# TotalEnergies : our strategy



**Committed to HSE  
from R&D to Customer use**

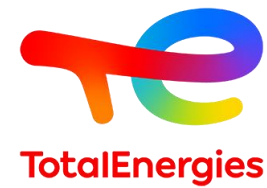




# 02.

Neat oil: Valona Bio

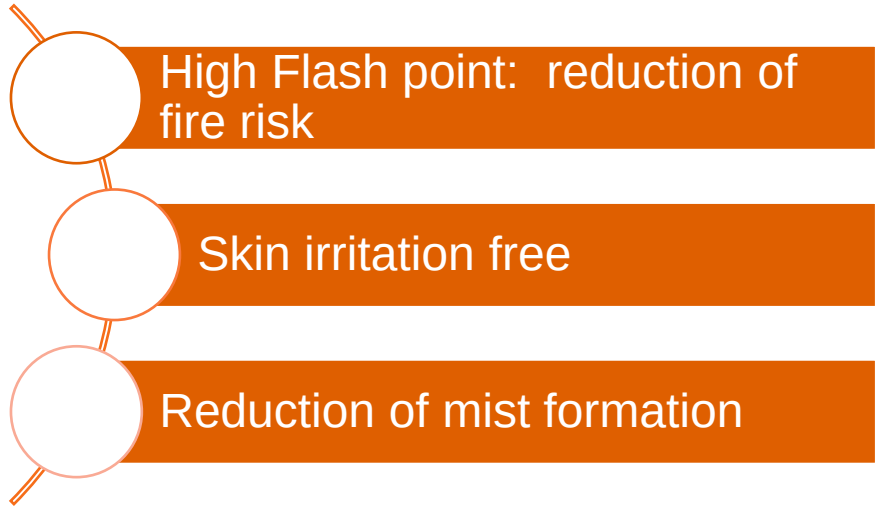
# Valona Bio



- Safest molecule available on the market
- Limitation of pictograms and H-Phrases

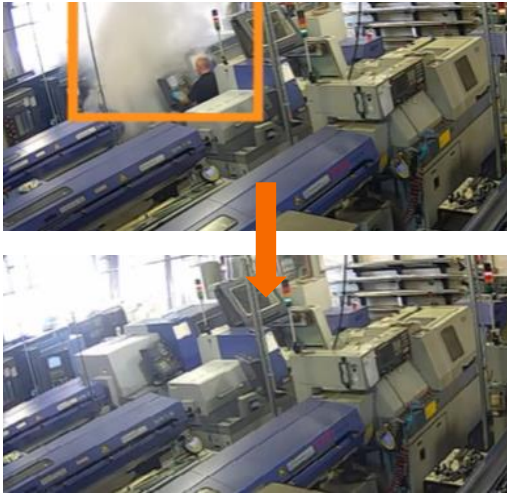


- Improvement of working conditions and limitation of impacts



| PUN                                                                                                                                                                                        | Identifikation                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 2.1 Klassifikation                                                                                                                                                                         | Produktet eller blandingen                                                  |
| Produkt                                                                                                                                                                                    | : Blanding                                                                  |
| Klassifikation                                                                                                                                                                             | d til Europa-Parlamentets og Rådets forordning (EF) nr. 1272/2008 [CLP/GHS] |
| Ikke klassificeret                                                                                                                                                                         |                                                                             |
| Dette produkt er ikke klassificeret som farligt i henhold til forordning (EF) 1272/2008 med ændringer. Se afsnit 11 for mere detaljerede oplysninger om helbredspåvirkninger og symptomer. |                                                                             |
| 2.2 Mærkningselementer                                                                                                                                                                     |                                                                             |
| Signalord                                                                                                                                                                                  | : Intet signalord.                                                          |
| Faresætninger                                                                                                                                                                              | : Ingen kendte betydelige virkninger eller kritiske risici.                 |
| Sikkerhedssetninger                                                                                                                                                                        |                                                                             |
| Revisionsdato : 2021/03/19                                                                                                                                                                 | Version : 1                                                                 |
|                                                                                                                                                                                            | Danmark DANSK 1/13                                                          |

|               |                           |                |
|---------------|---------------------------|----------------|
|               | <b>VALONA MS 7010 BIO</b> | SDS # : 086989 |
| Forebyggelse  | : Ikke relevant.          |                |
| Reaktion      | : Ikke relevant.          |                |
| Opbevaring    | : Ikke relevant.          |                |
| Bortskaffelse | : Ikke relevant.          |                |



Increased performances vs  
standard Technology

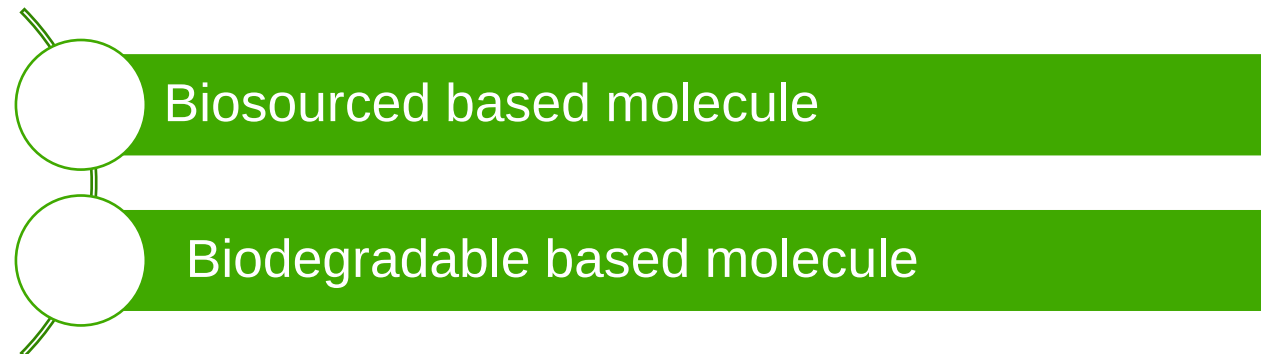
- High resistance to oxidation
- Increased lifetime of the tool



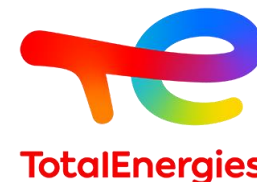
Valona Bio (left) vs Standard Technology (right)



- Priority for biodegradable and biosourced molecule
- Decrease of carbon footprint  
CO<sub>2</sub>



# Valona Bio : Reduction of carbon footprint vs standard technology



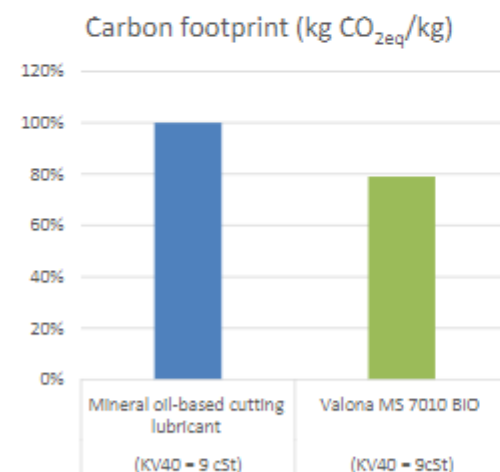
## Comparative Carbon Footprint : Valona MS 7010 BIO vs mineral oil-based cutting lubricant

### Introduction

The carbon footprint is a quantification of the inflows and outflows associated with the different stages of a product's lifecycle in order to assess the potential impact on climate change. It is expressed as an amount of CO<sub>2</sub> eq, which is a metric measure used to compare the emissions of various greenhouse gases based on their global warming potential.

### About Valona BIO

Valona BIO is TotalEnergies Lubrificants' range of bio-sourced, rapidly bio-degradable and multi-service neat cutting oils, covering from light to very severe operations.



Calculated on 07/03/2022

21%

Reduction of carbon footprint for Valona MS 7010 BIO compared to a conventional mineral oil-based cutting lubricant



Valona MS 7010 BIO holds the European ECOLABEL certification FR / 27/002

### Methodology



Measurement conditions : ISO 14040/44



Software : Simapro V.9.0.0.48



Data source :

- Primary Data: Total manufacturing site specific information (2015)
- Secondary data: LCA reference databases (EcolInvent 3.3)



Carbon Footprint method : IPCC 2013 100a. V1.03

### Perimeter

System boundaries : Cradle to Blending gate

Functional unit : Producing 1 kg of lubricant, ready to use, at blending gate

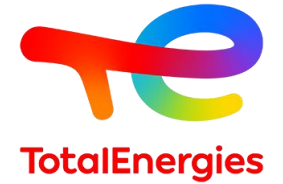
The report below has been set up based on public figures and data and is delivered for information only. This report has been prepared without prejudice to any applicable regulations and shall not be taken as an official statement from TotalEnergies Marketing Services nor from any other affiliate or related company within TotalEnergies company. The analyses are based on ISO standard procedures, nonetheless, they are performed on internal proceedings which have not been assessed or certified by regulatory body. Therefore, the data contained here shall not be used within a certification process without being checked by appropriate methods.



# 03.

Folia : a disruptive  
technology

# Folia : the revolution in the field of Metalworking



*The best solution for you and your operations*

## Health



- Safest molecule available on the market
- Pictogram free
- H Phrase free

- Reduced consumption
- Longer fluid timespan
- Longer tool lifetime

## Performance



## Safety



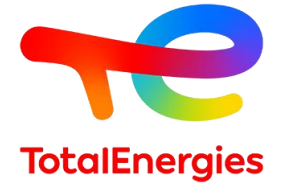
- No oily machine
- No oily mist

- Mineral oil free
- Reduction of carbon footprint vs standard technology (emulsion)

## Climate

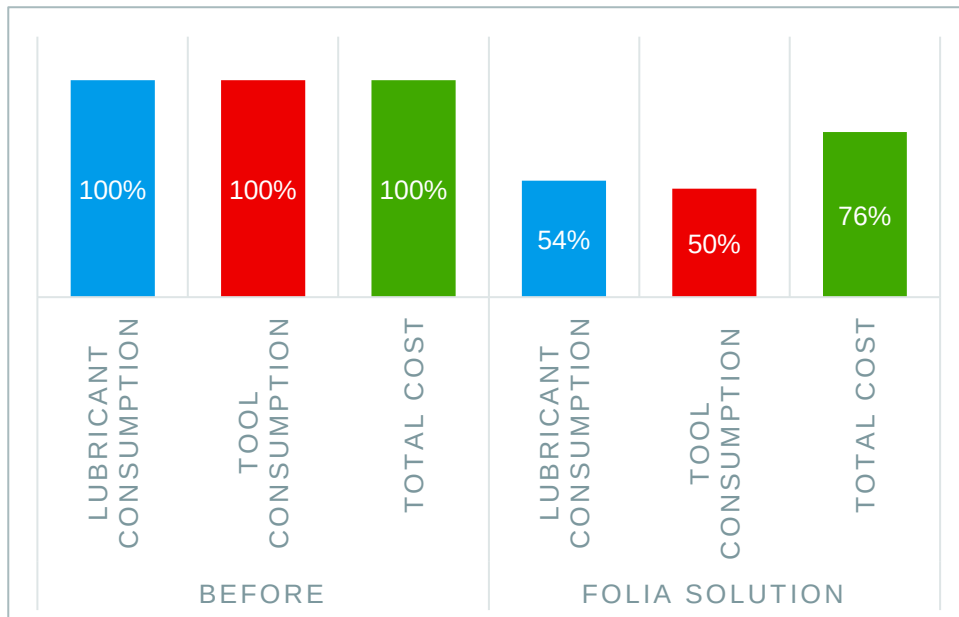


# TCO SAVINGS WITH FOLIA – Automotive Industry

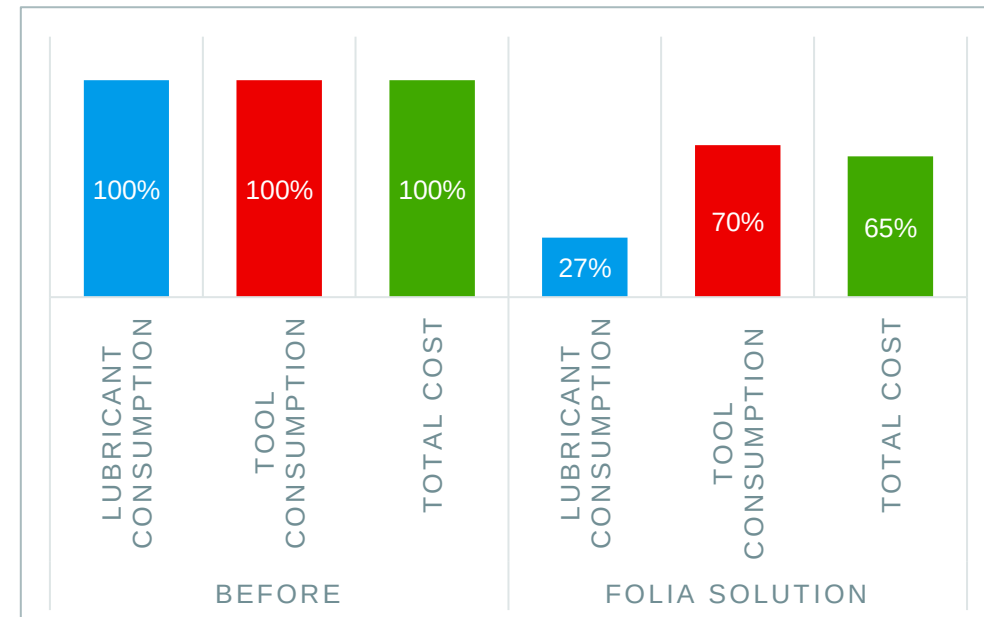


- TCO savings : a key performance driver for your operations.

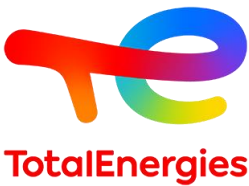
## ➤ Sucess Story n°1: **24%** TCO Savings



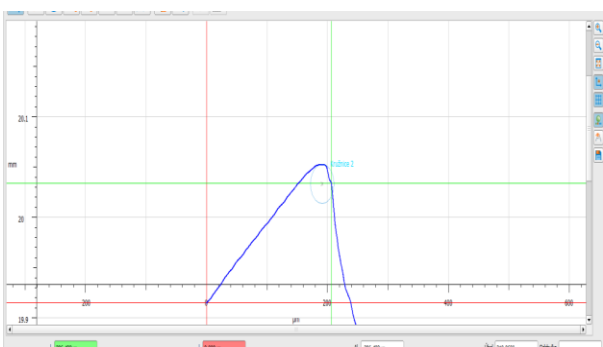
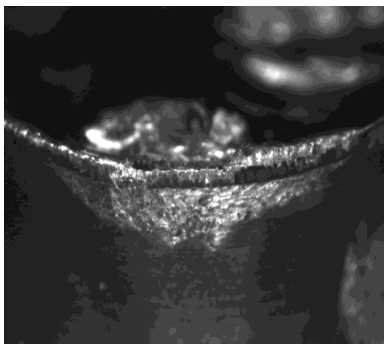
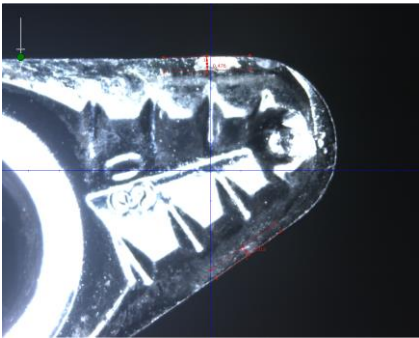
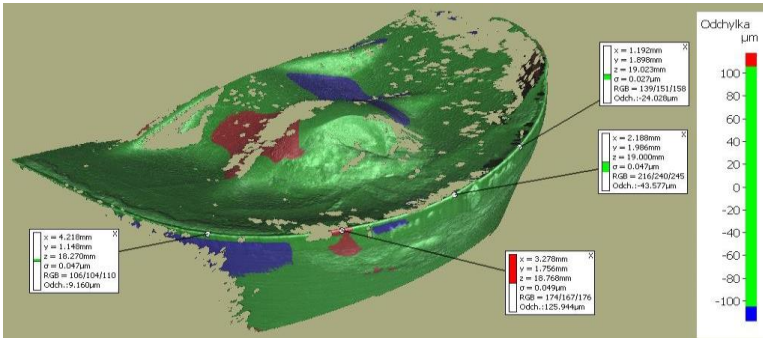
## ➤ Sucess Story n°2: **35%** TCO Savings



# TCO: Comparison of tool wear



Comparison of wear (radius R) of tool inserts used Folia vs Competitors



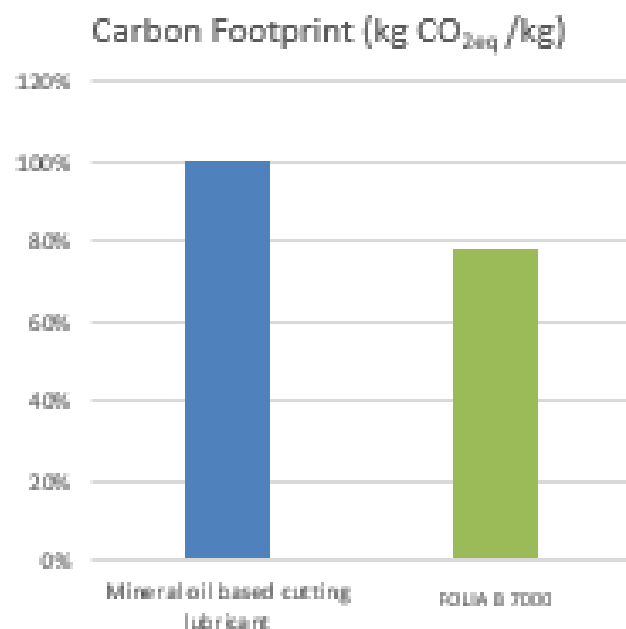
Folia

**-68%** of tool wear with Folia

| Fluid        | Insert no. | Side | Radius R (µm) |
|--------------|------------|------|---------------|
|              | 1          | A    | Reference     |
|              | 1          | B    | 164,0         |
|              | 2          | A    | 60,9          |
|              | 2          | B    | 26,6          |
|              | 3          | A    | 14,5          |
|              | 3          | B    | 91,0          |
|              | 4          | A    | 21,7          |
|              | 4          | B    | 19,4          |
| Folia A 7000 | 1          | A    | 9,9           |
| Folia A 7000 | 1          | B    | 10,8          |
| Folia A 7000 | 2          | A    | 13,4          |
| Folia A 7000 | 2          | B    | 16,2          |
| Folia A 7000 | 3          | A    | 6,1           |
| Folia A 7000 | 3          | B    | 18,1          |
| Folia A 7000 | 4          | A    | 48,0          |
| Folia A 7000 | 4          | b    | 21,8          |

## Introduction

The carbon footprint is a quantification of the inflows and outflows associated with the different stages of a product's lifecycle in order to assess the potential impact on climate change. It is expressed as an amount of CO<sub>2</sub>eq, which is a metric measure used to compare the emissions of various greenhouse gases based on their global warming potential.



**22%**

Reduction of carbon footprint for FOLIA B 7000 compared to a conventional mineral water-based lubricant

## Methodology



Measurement conditions : ISO 14040/44



Software : Simapro V.9.0.0.48



Data source :

- Primary Data: Total manufacturing site specific information (2015)
- Secondary data: LCA reference databases (Ecoinvent).



Carbon Footprint method : IPCC 2013 100a, V1.03

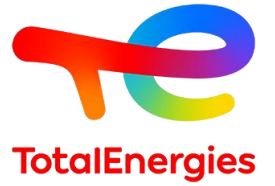
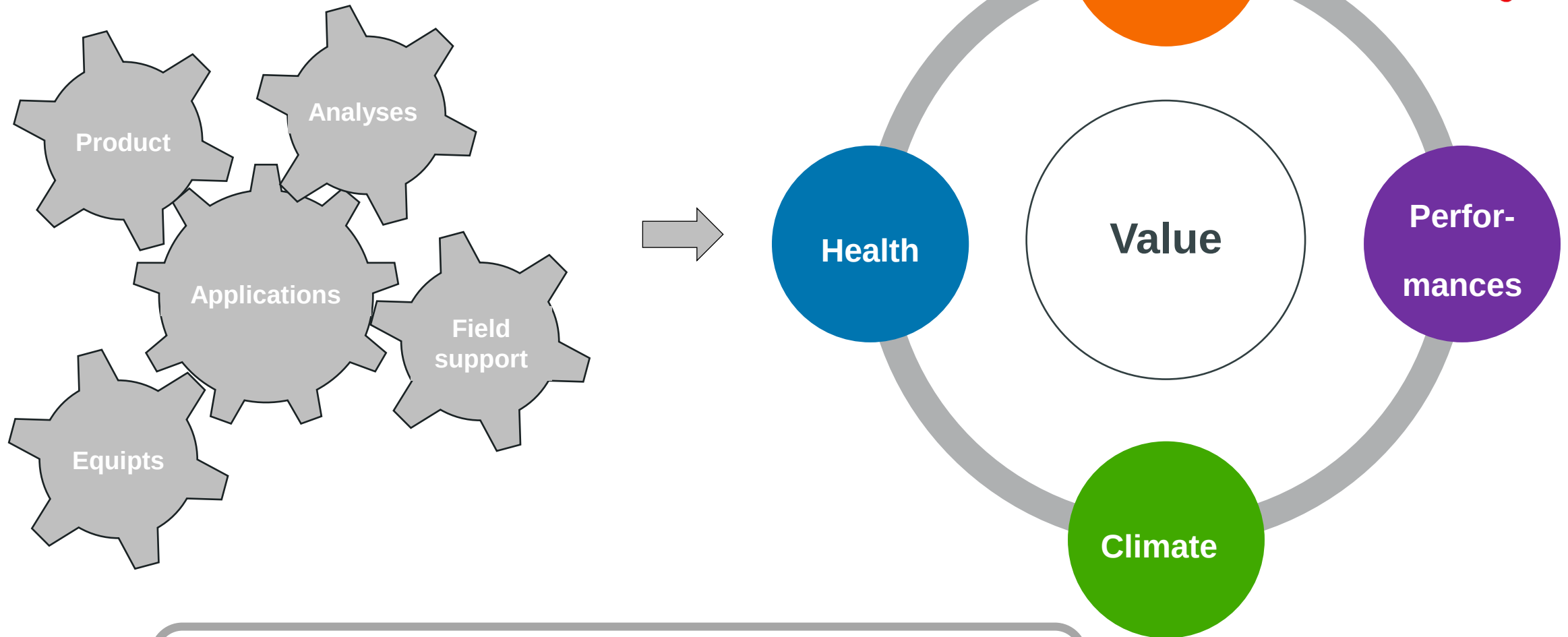
## Perimeter

System boundaries : Cradle to Blending gate

Functional unit : Producing 1 kg of lubricant, ready to use, at blending gate

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# From expertise to Value Creation



**TotalEnergies Lubrifiants :**  
**Innovative solutions for you and your operations**