



# Quantifying and Generating Value through R&D and Innovation at Lubrizol

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The Lubrizol Corporation

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# About me...

- From Merthyr Tydfil in Wales (UK)
- BSc /PhD in Chemistry: University of Surrey, UK
- Married to Adrian; one daughter – Carys (aged 18); 3 cats, 2 dogs
- Like to hike, bake, travel
- Career
  - Lubrizol for 28 years
  - R&D & business roles in multiple divisions and countries (UK, USA, China)
  - Current Role: *Senior Vice President, Chief Technology Officer*



# About Lubrizol



## 96+ Years

of history and opportunity,  
founded in 1928



## 8,000+

Employees Globally

## 7,150

Products

## 100+

Countries Served

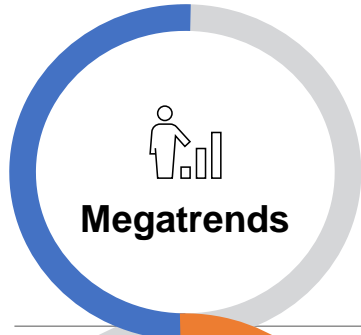
## 3,500

Patents

50+ Manufacturing Sites  
29 R&D Labs (excl. QA)  
48 Commercial Offices

Backed by deep  
chemistry, formulation,  
application expertise

# Megatrends Driving Our Growth & Focus



**Future Mobility**



**Sustainability**



**Health & Hygiene**



**Emerging Markets**



- New formulations for alternative drivetrains
- High-performance materials to unlock efficiencies

- Demand for natural ingredients in consumer products
- Decarbonization and circularity solutions

- Advanced drug therapies & delivery systems
- Growth in medical device for consumers & healthcare experts

- Localization of supply chain and production
- Energy efficiency to support increased living standards
- Growing consumer classes



**Research | Development | Decision Science | Innovation | Manufacturing**

# Did You Know Lubrizol Is In...



- Hand sanitizer
- Engine oil
- Refrigeration units
- Athletic wear
- Plumbing and industrial piping
- Medical catheters

- Industrial gear equipment
- Batteries
- Paints and coatings
- Medicine and vitamins
- Toothpaste
- Electronics

- Food packaging
- Laundry detergent
- Electric/hybrid vehicles
- Lotions
- Dental aligners
- Body wash

***Lubrizol science delivers sustainable solutions to advance mobility, improve well-being and enhance modern life.***

# Lubrizol Purpose



# Innovation Organization & Process



- Dedicated team: We have aligned our innovation organization and process in this way
- Process discipline: Think Big, Start Small, Learn Fast, Fail Early, Scale Quickly

# How We Define a Sustainable Solution



## Aligns Health & Environmental Impacts

Minimize or avoid substances or impurities with human health and environmental impacts

## Anticipates Future Concerns

Potential future regulatory limitation or restriction; customer voluntary decisions to exclude specific substances, ingredients or materials

## Delivers Sustainable Impacts

- Reduces Climate Impact
- Enhances Resource Conservation and Efficiency
- Empowers Circularity

Focus on:  
WHAT to make &  
HOW to make it



**MINIMIZING  
OUR FOOTPRINT**



**MAXIMIZING  
OUR HANDPRINT**



# An Enduring History of Sustainable Solutions



Since 1928, Lubrizol has provided solutions to our customers' greatest sustainability challenges – in our next century we will build upon our history of collaboration to empower the technology and innovation that is advancing a more sustainable world.



## Engine Oil and Fuel Additives

Extending engine mileage from 3,000 miles in 1928 to more than 150,000 miles today; reducing CO<sub>2</sub> emissions



## Fermentation Derived Ingredients

Preserving biodiversity while delivering nature-based active ingredients for personal care applications



## Low Global Warming Potential Cooling

Enabling efficient cooling and refrigeration technology without harmful emissions



## Bio-based Polymers and Resins

Renewable-sourced thermoplastic polyurethane for sports, footwear and other applications



## Thermal Management Fluids

Increasing range, reducing charging time for EVs; enhancing energy and water efficiency for server farms



# Key Actions/ Future Proofing

- ❑ Develop clear purpose, vision, values and goals
- ❑ Be clear about innovation ambitions and objectives – align with strategy and portfolio
- ❑ Create an organization aligned with ambitions – and be clear about H1/2/3 accountabilities
- ❑ Develop innovation processes & metrics – and follow them
- ❑ Create a culture that embraces change, encourages creative thinking and smart risk-taking