

## MotorSilk® Annual Engine Treatment

*Performance and Value Through Sustainability*

### Environmental Value

#### *CarQuest National Fleet*

- ⊕ 6,310 delivery cars/light trucks across North America
- ⊕ Result due to improvement in fuel efficiency was:

**GHG Reduction:** 4.78 tons CO<sub>2</sub>e vehicle/annum

MotorSilk® is listed on the Canadian Standards Association

*CleanProjects™* Carbon Registry

Following the robust requirements of **ISO 14064**, the MotorSilk® solution has achieved the necessary third party approvals, life-cycle analysis and impact on engine performance to be listed on the Registry, meaning that its use will decrease the carbon footprint of the vehicle in question in a quantifiable manner, generating carbon offsets/credits.

#### *Environmental Awards*

The *R&D 100* Award  
EPA Environmental Technology Award

#### *Why Your Fleet Needs MotorSilk®*

- Maintenance savings— reduced wear
- Reduced friction by 90%
- Reduced fuel consumption
- Treat annually- 1:10 ratio to oil
- Base oil TBN/TAN extended by a factor four (4)

### Fuel Efficiency Improvements:

Dynamometer Testing at Toromont CAT - 1,100 hp engine: 8.01%  
- Class 8 Transport: 6.7%

#### National Fleets: Improvements Per Annum

- ⊕ **CarQuest Fleet Results** - 6.4% - Six week pay-back
- ⊕ **Trucking Fleet Solution-Canadian Tire Corporation Limited**
  - Internal audit showed: 5.53%
  - Return on Investment: 531%
  - Net Savings: \$3,600 per truck
- ⊕ **Locomotive Fleet— Class One Railway (North America)- CN Rail**
  - Fuel savings: 5.52% (includes generators)
  - Improved Lubricity for parts—gaskets/turbos
  - Maintenance Savings— parts and oil
- ⊕ **Transit Authority - Major Regional System— GO Transit**
  - HEP and Busses : 5.2% Fuel Savings
  - Locomotive Engines: 4.8% Improvement
- ⊕ **Mobile Cranes— Intermodal Operations**
  - Cranes: 7.2% Fuel Savings

### Background

The patented core technology, the Boron Crystal Lattice Structure (CLS) Bond®, was developed for NASA at the *US Argonne National Laboratory* with the aim of eliminating friction. This self-renewing treatment with a co-valent macromolecular boundary layer, Rockwell 85, protects and cleans metal surfaces, preventing corrosion and other contamination. The result of adding MotorSilk® in the engine is an improvement in performance resulting from reduced metal wear, an increase in lubricity, cleaner/protected working parts, improvement in the base oil in use, and improved engine efficiency.

**Technical Validation:** SGS Laboratories/Chevron Labs/Technion IT/Falex

**Environmental Validation:** ICF International/Williams Eng./CSA

#### Bonding vs Coating

Oil additives, like PTFE, merely coat the surfaces; **Boron CLS Bond®** macro-molecularly bonds to the metallic surfaces providing a durable, clean, nearly frictionless co-efficient of friction of **0.01, Boundary Layer**

**Compatible with all engine oils, and exceeds all manufacturer's engine warranty requirements. Base oil meets/exceeds A.P.I. service requirements**

