

Product

Problem: In details

Main Problem Overview:

When temperature of car's engine drops down significantly due to the weather conditions in the harsh climate, viscosity of the lubricant, located in the engine and gearbox compartment of the automobile, on the other hand, sharply increases. This results in several problems, with the two most crucial ones being higher fuel consumption and gas emissions.

- On the other hand, rapid increase in engine's temperature that takes place during the engine start, always results in engine oil absorbing excessive amount of heat, which, in its turn, facilitates reaction of lubricant oxidation. Main reason that stands behind this phenomenon comes from the fact that most of the conventional lubricants' thermal properties are relatively weak. As a result of this, prolonged exposure of the lubricant to the temperature swings can and will decrease its lifetime.

Product

- However, we, ThermoNorth, have developed a novel and cutting-edge lubricant additive, also known as PCM (which stands for phase-change material) additive. New nano-size molecular additive greatly improves thermal properties of the lubricant.

Some of the core advantages of the PCM additive are:

1. Significant reduction in friction between mechanical elements of the engine and gearbox specifically (as a result fuel consumption is reduced by 10%)
2. Impressive improvement of lubricant's thermal properties (e.g. heat capacity)
3. Prevention of sealing and corrosion effects

Core Features:

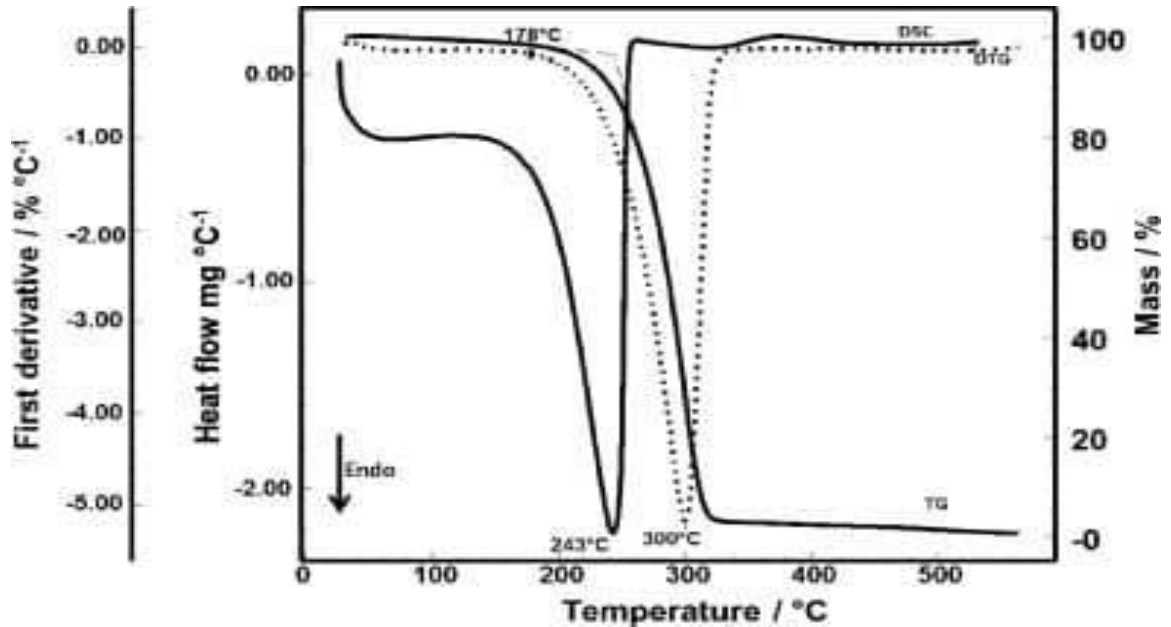
One of the main features of our product that sets it apart from any other conventional solutions to the described earlier problem and puts it into its own niche, is presence of hybrid materials in the product's composition, such as eutectic mixture of polyols and inorganic materials. As a result of this, energy storage capacity value of our product is equal to an impressive 320 J/g. Naturally, when added to the lubricant, it significantly boosts lubricant's thermal properties as well. Apart from energy saving abilities, polyols demonstrate excellent lubricating properties as well as strong oxidation-corrosion resistance. Properties of lubricant additive are shown below:



Picture 1 Sample

Table 1 Properties of additive

Density at 20 C	1,11	g/sm3
Viscosity at 30 C	375	375 cP
Vapour Pressure at 20 C	0,01	mmHg



Graph 1 Thermogram of additive

Our achievements:

- 1) ClimateLaunchpad 1st place winner in Azerbaijan National final and Finalist of Climatelaunchpad Grand Final in Scotland.
- 2) 1 st Place winner of Azerbaijan Innovation Challenge and won \$5000
- 3) Participation in Istanbul Innovation Days 2018 sponsored by UNDP
- 4) 2 nd place winner of GIST Regional Startup Training Caucasus (\$1500 seed fund)
- 5) 2 nd place winner of NewSpace Acceleration Program (\$5000seed fund)
- 6) Winner of New Idea startup competition organized by BP. (\$15000 Business development support)

Media:

https://www.youtube.com/watch?v=dtTwY_gJ6HQ

<https://en.trend.az/azerbaijan/society/3003276.html>

https://azertag.az/en/xeber/BHOS_start_up_project_wins_second_place_in_NewSpace_Business_Accelerator_Programme-1297302

<https://gita.gov.ge/eng/list/show/284-GIST-is-regionuli-startap-treningis-finali>

<http://sil.vc/winning-3-startups-of-climatelaunchpad-are-going-to-scotland/>

<https://en.trend.az/azerbaijan/society/2993290.html>