NANO MATERIALS & PROCESSES INC.

1. Identification of the material and supplier

Product Name	Engine Oil Additive FM - Protect™
Other means of identification	None
Part numbers	NA
Recommended Use	Anti-friction engine oil additive
Recommended restrictions	Not more than two treatments per engine
Manufacturer/Importer/Supplier/Distributor Information	
Manufacturer	
Company name	Nano Materials and Processes, Inc.
Address	659 Heritage Dr., Milford, MI 48381 USA
Telephone	248-529-3873
Website	www.nanompi.com
E-mail	info@nanompi.com
Emergency Telephone Number	586-292-8464

2. Hazard(s) identification

Physical hazards	This material is not hazardous according to regulatory guidelines (see (M)SDS Section 15).
Health hazards	Eyes – Contact with eyes may cause irritation Skin – Contact with skin may cause irritation Inhalation – May cause irritation of the nose and throat Ingestion – May cause nausea and vomiting. Large quantities may affect the central nervous system.
Physical/chemical hazards	No significant hazards.
Health Hazards	High-pressure injection under skin may cause serious damage. Excessive exposure may result in eye, skin, or respiratory irritation
Environmental hazards	Not a significant hazard. Avoid drainage into sewers, drainage ditches, lakes or rivers
OSHA defined hazards	**NFPA Hazard ID:** Health: 0 Flammability: 1 Reactivity: 0 **HMIS Hazard ID:** Health: 0 Flammability: 1 Reactivity: 0
Precautionary statement	This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.
Hazards not otherwise classified (HNOC)	None as defined under 29 CFR 1910.1200.

3. Composition/information on ingredients

This material is defined as a mixture.

Mixtures

Chemical name	Common name and synonyms	CAS number	%	GHS Hazard Codes
Yukoil Semisynthetic 10W-40	Semisynthetic motor oil consisting of:		>97%	
	Distillates (petroleum), hydrotreated heavy paraffinic	64742-55-8	30% to 50%	Asp. Tox. 1; H304
	Mineral (base) oil	278-012-2	40% to 60%	Para. 8.1
	Phosphorodithioic acid, mixed O, O-bis(1,3 dimethylbutyl and iso-Pr) esters, zinc salts	84605-29-8	0.43% to 1.00%	Skin irrit. 2; H315 Eye Damage 1; H318 Aquatic Chronic 2; H411
	Reaction products of Benzeneamine, N-phenyl- with nonene (branched)	36878-20-3	0.40% to 0.80%	Aquatic Chronic 4; H413
Carbon	Ultra dispersed diamond; detonation synthesis nanodiamond; DSND	Not available	<4%	Not available
Iron (Fe)			<0.5%	Not available
Other chemicals below reportable levels				

*Designates that s specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Eye contact	Flush thoroughly with water. If irritation occurs, get medical assistance.
Skin contact	Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.
Inhalation	Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.
Ingestion	First aid is normally not required. Seek medical attention if discomfort occurs.

5. Fire-fighting measures

Extinguishing media	
Suitable	Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.
Unsuitable	Straight streams of water

Specific hazards arising from the chemical	Hazardous combustion products: aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides
Special protective equipment and precautions for firefighters **Specific instructions**	Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA).
Firefighting equipment/instructions	Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.
Specific methods	Use water spray to cool fire exposed surfaces and to protect personnel.

6. Accidental release measures

Notification Procedures	In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.
Personal precautions, protective equipment and emergency procedures	Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.
Methods and materials for containment and clean-up; Environmental precautions	**Land Spill:** Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent. **Water Spill:** Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants. Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken. **Large Spill:** Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

7. Handling and storage

Precautions for safe handling	Avoid contact with used product. Prevent small spills and leakage to avoid slip hazard.
Conditions for safe storage including any incompatibilities	Do not store in open or unlabeled containers. Keep away from incompatible materials.
Combustibility Classification	Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and

	grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

8. Exposure controls/personal protection

U.S. OSHA Table Z-1 limits for Air Contaminants (29 CFR 1910.1000)			
Components	**Type**	**Value**	**Source**
CATALYTIC DEWAXED LIGHT PARAFFINIC OIL (PETROLEUM)	Mist.	5 mg/m3	OSHA Z1
CATALYTIC DEWAXED LIGHT PARAFFINIC OIL (PETROLEUM)	Inhalable fraction.	5 mg/m3	ACGIH
CATALYTIC DEWAXED LIGHT PARAFFINIC OIL (PETROLEUM)	Mist.	5 mg/m3	ACGIH

Appropriate engineering controls	The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider: No special requirements under ordinary conditions of use and with adequate ventilation.
Individual protection measures, such as personal protective Equipment	Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.
Eye/face protection	If contact is likely, safety glasses with side shields are recommended.
Skin protection	Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include: No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact
Hand protection	Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include: No protection is ordinarily required under normal conditions of use.
Other	
Respiratory protection	If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material

	include: No special requirements under ordinary conditions of use and with adequate ventilation. For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded
Thermal hazards	
General hygiene considerations	Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

9. Physical and chemical properties

Appearance	
Physical state	Liquid
Form	Liquid
Color	Brown
Odor	Characteristic
Odor threshold	N/D
Flash point	210°C (in open crucible)
Vapor pressure	0.013 kPa (0.1 mm Hg) @ 20°C
Viscosity	14.5 Kinematic viscosity at 100°C, mm^2/s
Viscosity index	140
pH	Alkalinity, mg KOH/g = 9.5
Boiling point / range	>316°C
Autoignition Temperature	N/D
Melting point / range	Not available
Relative density/specific gravity	Not available
Density	876 kg/m^3 @20°C
Evaporation rate	N/D
Flammability (solid, gas)	NA
Upper/lower flammability or explosive limits (approximate volume % in air)	
Flammability limit – lower (%)	0.9
Flammability limit – upper (%)	7.0
Vapor density (Air = 1)	>2 @ 101 kPa
Solubility(ies)	
Solubility (water)	Negligible

10. Stability and reactivity

Reactivity	See sub-sections below.
Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Excessive heat. High energy sources of ignition.
Possibility of hazardous reactions	Hazardous polymerization will not occur.
Incompatibility with various	Avoid strong oxidizers.

substances/Hazardous Reactions	
Hazardous decomposition products	Material does not decompose at ambient temperatures.

11. Toxicological information

INFORMATION ON TOXICOLOGICAL EFFECTS

Hazard Class	**Conclusion / Remarks**
Inhalation	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures.
Ingestion	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Acute Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin Corrosion/Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye	
Serious Eye Damage/Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.
Sensitization	
Respiratory Sensitization: No end point data for material.	Not expected to be a respiratory sensitizer.
Skin Sensitization: No end point data for material.	Not expected to be a skin sensitizer. Based on assessment of the components.
Aspiration: Data available.	Not expected to be an aspiration hazard. Based on physico-chemical properties of the material.
Germ Cell Mutagenicity: No end point data for material.	Not expected to be a germ cell mutagen. Based on assessment of the components.
Carcinogenicity: No end point data for material.	Not expected to cause cancer. Based on assessment of the components.
Reproductive Toxicity: No end point data for material.	Not expected to be a reproductive toxicant. Based on assessment of the components.
Lactation: No end point data for material.	Not expected to cause harm to breast-fed children.
Specific Target Organ Toxicity (STOT)	
Single Exposure: No end point data for material.	Not expected to cause organ damage from a single exposure.
Repeated Exposure: No end point data for material.	Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components.

OTHER INFORMATION

For the product itself:

Diesel engine oils: Not carcinogenic in animal tests. Used and unused diesel engine oils did not produce any carcinogenic effects in chronic mouse skin painting studies.
Oils that are used in gasoline engines may become hazardous and display the following properties: Carcinogenic in animal tests. Caused mutations in vitro. Possible allergen and photoallergen. Contains polycyclic aromatic

compounds (PAC) from combustion products of gasoline and/or thermal degradation products.

Contains:
Semi-synthetic base oils and small quantities of trace elements: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitizing in test animals and humans.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

12. Ecological information

The information given is based on data available for the material, the components of the material, and similar materials.

Ecotoxicity	Material -- Not expected to be harmful to aquatic organisms.
Persistence and biodegradability	Expected to partition to sediment and wastewater solids.
Mobility in soil	Base oil component -- Low solubility and floats and is expected to migrate from water to the land.

13. Disposal considerations

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Disposal instructions	Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants
Hazardous waste code	RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.
Waste from residues / unused products Contaminated packaging	Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

14. Transport information

DOT (land)	Not regulated for land transport
IATA (*air)	Not regulated for air transport
IMDG (sea)	Not regulated for sea transport according to IMDG-code
TDG (land)	Not regulated for land transport

15. Regulatory information

OSHA Hazard Communications Standard	This material is not considered hazardous in accordance with OSHA HazCom 2012, 29 CFR 1910.1200.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)	
	Not regulated
CERCLA Hazardous Substance List (40 CFR 302.4)	
	Not listed.
SARA 304 Emergency release notification	
	Not regulated.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	
	Not listed.
Superfund Amendments and Reauthorization Act of 1986 (SARA)	
Hazard categories	Immediate Hazard – No
	Delayed Hazard – Yes
	Fire Hazard – No
	Pressure Hazard – No
	Reactivity Hazard – No
SARA 302 Extremely hazard substance	Not listed.
SARA 311/312 Hazardous chemical	No.
SARA 313 (TRI reporting)	Not regulated.
Other federal regulations	
Clean Air Act Section 112 Hazardous Air Pollutants List	Not regulated
Clean Air Act Section 112® Accidental Release Prevention (40 CFR 68.130)	Not regulated
Safe Drinking Water Act	Not regulated
US state regulations	
US. California Controlled Substances. CA Dept. of Justice (California Health and Safety Code Section 11100)	Not listed.
US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit.22, 69502.3, subd.(a))	Distillates ((petroleum)
US. Massachusetts RTK – Substance List	
US. New Jersey Worker and	Not listed

Community Right-to-Know Act	
US. Pennsylvania Worker and community Right-to-Know Law	Not listed
US. Rhode Island RTK	Not regulated
US. California Proposition 65	California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins

16. Other information

Key to abbreviations	NMPI = Nano Materials and Processes, Inc.
	DSND = detonation synthesis nanodiamond(s)
	H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1
	H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
	H318: Causes serious eye damage; Serious Eye Damage/Irr, Cat 1
	H401: Toxic to aquatic life; Acute Env Tox, Cat 2
	H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2
	H413: May cause long lasting harmful effects to aquatic life; Chronic Env Tox, Cat 4
History	
Date of issue	11-25-2015
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Notice to reader	The information and recommendations contained herein are, to the best of NMPI's knowledge and belief, accurate and reliable as of the date issued. All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet. The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from NMPI. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. NMPI shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the NMPI to ensure that this document is the most current available. Alteration of this document is strictly prohibited.