

# NanoDissolve®

## Technical Data Sheet

NanoDissolve® is a revolutionary product combining several proprietary solubilization chemistries that are now "Powered by Nano®". Smaller than an atom, Nano particle technology is a revolutionary approach to creating substances from particles engineered at the molecular level. Due to their size, the Nano particles drive the proprietary blend of liquification chemistries deep into even the toughest deposits, providing superior dissolving and reliquification capabilities. Now deposits can be addressed even with minimal flow or agitation.

### FEATURES AND BENEFITS:

- Great alternate to toxic chemistries like Xylene
- Increased oil and gas production
- Reduces oil viscosity
- Does not require heating
- Does not require removal prior to refining
- Reduces under deposit corrosion
- Rapid line clean up
- Reduces pumping fees
- Prevents redeposition
- High flashpoint
- Low evaporation properties

### TYPICAL PHYSICAL PROPERTIES:

Appearance and Color	Clear yellowish liquid
Initial Freeze Point	0°F (-18°C)
Odor	Faint hydrocarbon odor
Solubility in Water:	Not soluble
Flash Point	>203 F
Specific Gravity	.78 ± 0.04
Solubility in Hydrocarbons:	Yes

### DIRECTIONS FOR USE:

Consult your Heartland Energy Group, Ltd. sales associate for dilution recommendations.

### APPLICATION:

The proprietary blend of solubilization chemistries allow for a wide range of applications within the oil industry. See your local distributor for specific feed rates and recommendations.

#### Hydrocarbon Reliquification:

NanoDissolve® will re-liquify or remediate petroleum (hydrocarbon) based on sludges, sediment and solids. These compounds include distillate fuel oils, residual oils, lubricants and many other products resulting from the distillation of crude oil. The hydrocarbon chains are re-liquified, the viscosity reduced (up to 80% or more) and the API Gravity increased (up to 3 times) upon application of NanoDissolve®. The oil is not harmed and recovery rates of 85% (of the available hydrocarbons) or more are normally achieved. Finally, the product does not require removal prior to refining.

#### Paraffin Reliquification:

NanoDissolve® is an efficient means for addressing a number of paraffin deposits, whether down-well, in flow-lines or battery tanks or any other location. The blend of solubilization chemistries allows for the saturated, unbranched, acyclic hydrocarbons (basis for the paraffin) to be broken down and short-chain hydrocarbons substituted. The Nano particles allow penetration into even the severely dehydrated paraffin deposits. Once reliquified, the paraffin will maintain its state, even down to very low temperatures, thus preventing redeposition.

#### Asphaltene Reliquification:

As with paraffin, NanoDissolve® is an efficient solution for addressing asphaltene deposits, particularly in flowlines or various deposits. NanoDissolve® replaces the short to mid length hydrocarbon chains that have volatilized off during the deposition process. These "replaced" hydrocarbon chains are now non-volatile, thus preventing redeposition of the asphaltene. The Nano particles, again, provide superior product penetration, thus performance.

### STORAGE AND HANDLING:

Aspiration hazard if swallowed. Inhalation of mist may produce severe irritation of the respiratory tract. Do not induce vomiting if swallowed. Recommend safety glasses and gloves at a minimum. Keep container closed when not in use. Store product in a dry and cool area. Refer to NanoDissolve® SDS for other safety and handling information.

### PACKAGING:

NanoDissolve® is packaged in 55 gallon drums. Bulk quantities available upon request.



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