



Miconovo NOVOSPILL

Product Brochure

*A biological solution for hydrocarbon pollution – Sustainable
Remediation & Long-Term Impact*

Version 0.3

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Challenges in Conventional Hydrocarbon Remediation

Hydrocarbon pollution is one of the most persistent and widespread environmental threats of our time.

Everyday, petroleum-based substances from fuels and lubricants to greases and heavy oils spill into our soils, waterways, and marine environments. These contaminants, collectively referred to as **Total Petroleum Hydrocarbons (TPH)**, are notoriously difficult to eliminate. They infiltrate ecosystems, threaten biodiversity, disrupt operations, and pose serious health and safety risks.

Once released, hydrocarbons don't just vanish, they **accumulate, migrate, and persist for decades**, particularly the heavier, more complex compounds. Traditional remediation methods like excavation, incineration, or chemical dispersal are **costly, time-consuming, and often environmentally damaging in their own right**.

In many cases, even state-of-the-art filtration systems are overwhelmed, allowing hydrocarbon waste to build up in settlement dams, pits, and surrounding soil as seen in recent industrial case studies.

The result...

- Lasting environmental impact
- Reputational damage
- Expensive cleanups
- Regulatory pressure / fines
- Operational downtime



Challenges in Conventional Hydrocarbon Remediation

Industrial activity, transportation, and energy production result in widespread hydrocarbon pollution, from oil leaks and tank spills to pipeline ruptures and contaminated soil and water. Traditional methods like excavation, incineration, and chemical dispersants are often expensive and logistically complex, disruptive to ecosystems, ineffective in fully eliminating TPH (Total Petroleum Hydrocarbons) and risky to human health and biodiversity.

Hydrocarbon contaminants, especially TPH, include a wide range of compounds from light fuels (petrol, diesel) to heavy oils and greases. These vary in mobility, solubility, and toxicity, making cleanup site-specific and technically challenging.

- **Complex Hydrocarbon Profiles:** Hydrocarbon pollution is a complex mix of compounds that vary in toxicity, mobility, and persistence. This makes treatment site-specific and often technically demanding.
- **High Remediation Costs:** Traditional cleanup methods like excavation, transport, incineration, or chemical treatment are expensive, labour-intensive, and often require specialist equipment.
- **Long-Term Environmental Impact:** TPH pollutants can persist in soil and water for decades, damaging ecosystems, contaminating groundwater, and harming wildlife if not properly treated.
- **Health & Safety Risks:** Exposure to certain hydrocarbons, especially aromatic compounds like benzene poses serious health risks to workers and surrounding communities.
- **Disruption of Operations:** Many remediation methods require site shutdowns or restricted access, delaying operations and increasing downtime costs.
- **Ineffective or Temporary Solutions:** Chemical dispersants and mechanical cleanup might reduce surface oil, but they don't fully eliminate hydrocarbons and can even make things worse by spreading contaminants.
- **Unsuitability for Sensitive Environments:** Wetlands, coastal zones, and areas with delicate biodiversity can't tolerate harsh remediation methods – requiring gentler, nature-based approaches.



NOVOSPILL

What is NOVOSPILL?

NOVOSPILL is a **verified organic**, live microbial formulation designed to rapidly biodegrade a full spectrum of hydrocarbons — from lightweight, volatile aromatics to heavier, persistent polycyclic compounds — **in situ**, and without the need for excavation, incineration, or chemical intervention.

Once applied, NOVOSPILL's proprietary consortium of **naturally occurring, non-pathogenic bacteria** and **specialised enzymes** immediately begin targeting hydrocarbon molecules. These microbes are selected for their natural ability to produce **oxygenase and dehydrogenase enzymes**, which initiate the breakdown of hydrocarbon chains by introducing oxygen atoms, making the compounds more soluble and less toxic. The metabolic process continues as the bacteria convert hydrocarbons into **biomass, carbon dioxide, water, and humic substances** — ultimately transforming the pollutants into **stable, nutrient-rich organic matter**.

The process is **entirely natural and aerobic**, requiring only moisture and oxygen to remain active. NOVOSPILL does not rely on heat, pressure, or synthetic chemicals, and poses **no risk to surrounding ecosystems**. It also contains a natural surfactant, allowing it to adhere to hydrocarbon residues even in dynamic environments like coastal rocks, tidal pools, and moving water. **It's more than cleanup — it's complete biological transformation.**

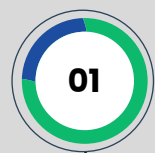


What benefits will NOVOSPILL provide?

NOVOSPILL offers a practical, high-performance solution for the biological breakdown of petroleum hydrocarbons in soil and water. Developed for use in real-world industrial and environmental settings, it enables **fast, on-site remediation** without the need for excavation, chemical dispersants, or costly off-site treatment.

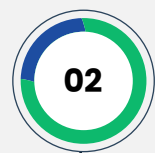
Its live microbial formulation targets a **wide range of hydrocarbon molecules**, including heavy, persistent compounds and converts them into safe, stable organic matter. This not only restores environmental quality but also supports compliance with regulatory thresholds for TPH levels.

With NOVOSPILL, contaminated sites can be treated **quickly, safely, and sustainably**, reducing risk, cost, and complexity in the remediation process.



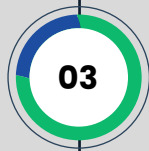
Fast & Proven results

TPH reductions of up to 90% in as little as 30 days, validated in large-scale trials. Hydrocarbons are biologically degraded rather than just masked or moved.



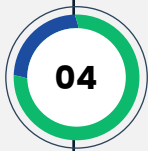
On-Site, In-Situ Treatment

No excavation. No trucking. No disruption causing downtime. NOVOSPILL is applied directly to the contamination site, saving time and minimising disruption.



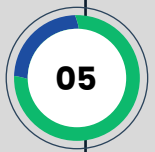
Converts Waste into Fertile Soil

Turns pollution into productivity. NOVOSPILL transforms hydrocarbons into humus-like organic material that supports plant growth and land regeneration.



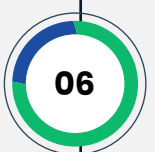
Long-Lasting Biological Action

Even a single application continues to work for months, breaking down complex hydrocarbon chains over time. No need for constant re-application.



Natural Surfactant Action

Sticks to hydrocarbons on land or water, including on rocks, in tidal pools, and across irregular surfaces, enabling sustained breakdown even in harsh conditions.



Full Spectrum of Hydrocarbons

From volatile light fuels to heavy industrial greases, NOVOSPILL effectively degrades **C7 to C36 hydrocarbons**, including stubborn polycyclic aromatics.

Product Applications

NOVOSPILL is designed to meet the challenges of hydrocarbon pollution wherever they occur, from industrial spill sites and contaminated soils to marine environments and aging infrastructure. Its **broad-spectrum** microbial action makes it suitable for both emergency response and long-term site rehabilitation. Whether you're managing daily operational runoff or remediating historic contamination, NOVOSPILL delivers a fast, **cost-effective, and environmentally responsible solution.**



Pipeline & Flowline Leaks: Quick response for linear leaks across long distances. NOVOSPILL can be sprayed directly onto contaminated soil or into containment trenches, rapidly neutralising hydrocarbons without excavation.

Tank Farm & Wellhead Spills: Ideal for high-risk storage and production sites. Whether it's chronic leakage or an emergency spill, NOVOSPILL provides fast on-site remediation, even in high-traffic industrial zones.

Surface Spills on Soil: Perfect for workshops, refuelling stations, and transport yards. NOVOSPILL breaks down visible hydrocarbons quickly and safely, reducing slip hazards, odours, and long-term environmental damage.

Contaminated Freshwater or Seawater: Biological treatment of hydrocarbons in open or contained water bodies. NOVOSPILL remains active even in saltwater (up to 65,000 ppm salinity).

Drill Cuttings & Mud Pits: Transforms oil-laden drilling waste into reusable soil. NOVOSPILL accelerates hydrocarbon breakdown in drill cuttings and sludges, supporting responsible disposal or land reclamation.

Tank Cleaning & Maintenance: A safer alternative to chemical degreasers. NOVOSPILL can be used to clean hydrocarbon residue from tanks, sumps, and pits, leaving surfaces free of oily buildup while reducing odour.

Coastal & Tidal Zone Remediation: Sticks where it's needed, even on rocks and in marshes. NOVOSPILL's natural surfactant ensures it adheres to hydrocarbons in difficult marine environments, continuing to degrade oil long after application.

Pit Closures & Legacy Contamination: Bring old waste pits back to life. NOVOSPILL is a powerful tool for closing contaminated pits, bioremediating aged hydrocarbons, and restoring land to a safe, usable condition.

Product Data

Product Composition

CAS #	CAS # COMPONENT
Not Available	Enzyme and Microbial Blend
7727-37-9	Nitrogen
7440-09-7	Potassium
7440-44-0	Organic Carbon
Not Available	Organic matter
7732-18-5	Water

Physical & Chemical Properties

- **Appearance:** Brown
- **Odour:** Molasses like
- **Physical state:** Liquid
- **pH Range:** Optimum pH range is 6.2
- **Boiling point:** 100C
- **Solubility (H2O):** Soluble
- **Vapour pressure:** None
- **Vapour density:** None
- **Specific gravity:** Approx. 1.0g/cc³
- **Evaporation rate:** ND
- **VOC:** NA
- **Octanol/H2O Coeff.:** ND
- **Flash point:** None

Safety

Handling & Storage Instructions:

Handling Procedures: Avoid eye contact

Storage Procedure: Store in cool dry area. Protect containers from damage.

Personal Protective Equipment (PPE):

- Personal Protective Equipment: Eyes/Face – Wear goggles.
- Personal Protective Equipment: Skin – Use impervious gloves.
- Personal Protective Equipment: Respiratory – If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

First Aid Measures:

- **Eyes:** Check for and remove any contact lenses. Immediately flush with plenty of water for at least 15 minutes. Get medical attention if irritation persists.
- **Skin:** In case of contact, wash off with water.
- **Ingestion:** The product will produce an emetic effect.
- **Inhalation:** Not expected to require first aid measures. Remove to fresh air. Get medical attention for any breathing difficulties.

Full Material Safety Data Sheet (MSDS): MSDS is available separately

NOVOSPILL

Use Case

Industrial Site

Settlement Dam

The Challenge

At an industrial site, a routine workshop wash bay discharge turned into a serious environmental hazard. Despite passing through oil separators, **approximately 230 kg of Total Petroleum Hydrocarbons (TPH) was entering the site's concrete-lined settlement dam every month**. Over time, these discharges accumulated into a thick, floating hydrocarbon layer that coated the entire surface of the dam.

When tested, the dam was holding **nearly 2 tons of TPH**, a dangerous mix of fuel residues, lubricants, and heavy oils (C7–C36). The site faced growing environmental risk, rising remediation costs, and pressure to comply with water discharge regulations.



Image: TPH settlement dam before treatment:

Traditional options were limited and problematic:

- **Excavation** was logistically difficult and expensive
- **Off-site purification** meant transport and downtime
- **Chemical dispersants** risked harming the ecosystem and offered no long-term solution

The hydrocarbons weren't just floating, they were saturating the system. If left untreated, they would continue leaching into water systems and surrounding soil, requiring permanent and resource intensive remediation measures.

What the site needed wasn't just removal, it needed **rapid, biological breakdown** of hydrocarbons **on-site**, with no disruption to operations.

Use Case

Industrial Site

Settlement Dam

A Proven Solution with NOVOSPILL

To address the growing hydrocarbon load in the settlement dam, the site implemented a field trial using **NOVOSPILL**, a verified organic, live microbial formulation specifically designed for **in-situ biodegradation of petroleum hydrocarbons**.

Rather than relying on excavation or mechanical filtration, the NOVOSPILL strategy was simple:

- Three direct surface applications over a 5-month period
- Microbial dosing calibrated to the estimated TPH load
- Diluted with water and sprayed using a standard high-volume bowser system

Real-World Validation

Visual indicators confirmed the biological activity; bubbling, thinning of the oil layer, and colour change from jet black to muddy brown, classic signs of enzymatic breakdown.

With NOVOSPILL, the site transformed a contaminated, high-risk dam into a biologically active system on the path to full recovery safely, sustainably, and at a fraction of the cost of traditional remediation.

How NOVOSPILL worked in this setting

From the first dose, NOVOSPILL began working **at the molecular level**, targeting a full range of hydrocarbons – from light aromatics (C7–C9) to complex heavy fractions (C15–C36). The microbes metabolised the pollutants into **non-toxic biomass and organic acids**, visibly transforming the surface layer from thick, black sludge to lighter, fragmented bio-flocs.

The results were striking:

- TPH levels dropped by 85% within 3 months – after just one dose
- Further 90% reduction observed within weeks of the second and third treatments
- Smaller TPH molecules were reduced to below detectable limits, while even heavy hydrocarbons declined sharply

Conclusion

The NOVOSPILL field trial delivered a clear message: *Hydrocarbon contamination doesn't require excavation, disruption, or chemical intervention, it can be biologically broken down, on-site, with lasting results.*

Image: TPH settlement dam after treatment



After treatment with NOVOSPILL, the surface layer of TPH on the dam has changed from black, smooth and glossy to a muddy brown

Use Case

Industrial Site

Settlement Dam

Conclusion

Through a series of targeted applications, NOVOSPILL achieved **up to 90% reduction in Total Petroleum Hydrocarbons** across all molecular weight classes, converting complex pollutants into harmless biomass and restoring the site's environmental integrity.

More than just a clean-up, this project demonstrated NOVOSPILL's ability to:

- Deliver measurable impact quickly
- Sustain microbial activity over several months
- Adapt to fluctuating pollution levels and environmental conditions
- Provide a scalable, cost-effective alternative to conventional remediation methods

From workshop runoff to large-scale environmental spills, NOVOSPILL is a **proven, powerful tool** for any industry facing the challenge of hydrocarbon pollution.