

Furlong Ground Stabilisation explains the uses of Lime in Stabilisation and also the difference between Quick Lime and Hydrated Lime as this question is often asked by our clients.

Lime stabilisation is a proven technique used to improve the engineering properties of these soils and create stronger, more durable foundations.

Hydrated lime and quicklime are widely used in soil stabilisation projects, helping engineers and contractors improve workability, increase soil strength and support long-term infrastructure performance.

Soil conditions play a critical role in the success of road construction, infrastructure and civil engineering projects. Weak, reactive or highly plastic soils can create challenges during construction and impact long-term pavement performance.

What Is Soil Stabilisation?

Soil stabilisation improves the physical properties of soil to make it suitable for construction. Treatment can modify the soil to improve handling and compaction, or stabilise it to increase strength and durability.

Lime is a commonly used stabilising agent for reactive and plastic soils. It can improve engineering performance and reduce the need to excavate and replace unsuitable materials.

How Lime Stabilisation Works

Mixing lime with suitable soils triggers chemical reactions that improve soil properties over time. These reactions can reduce plasticity, improve workability and help create stronger, more durable pavement layers.

The industry profile brochure notes that lime is particularly effective in plastic soils and clay-rich materials. In these soils, chemical reactions can form cementitious compounds that improve performance.

Changes in Plasticity

Lime treatment makes cohesive soils more crumbly and generally less plastic. In the tested soils, plasticity indices tended towards 5–15%, although changes depended on the original soil properties.

Changes appeared within the first hour, with the largest effects generally after 4 hrs of mellowing

Benefits of Lime Stabilisation

- Greater strength: Lime can increase soil strength and load-bearing capacity, helping create more robust pavements and infrastructure foundations.
- Better workability: Treated soils are often easier to handle and compact, improving construction efficiency.
- Reduced swelling: Lime can reduce the expansion and contraction of reactive soils as moisture levels change, contributing to more stable ground conditions.
- Improved moisture resistance: Treatment can increase resistance to moisture-related deterioration, supporting long-term infrastructure performance.
- Longer-lasting pavements: Improving the underlying soil structure can enhance pavement durability and service life.

Common Applications

Lime stabilisation is used in a range of civil engineering and infrastructure applications:

- Road construction
- Civil construction projects
- Earthworks
- Industrial developments
- Infrastructure foundations

For many projects, it offers an effective alternative to excavating and replacing unsuitable soils.

Quicklime and Hydrated Lime

Both [quicklime](#) and [hydrated lime](#) can be used for soil stabilisation. The choice depends on project requirements, construction methods and material specifications.

Quicklime

Quicklime is commonly used where high reactivity is required, supporting both soil modification and stabilisation.

Hydrated Lime

Hydrated lime is widely used in road construction and civil infrastructure, offering a versatile option for soil stabilisation and treatment.

Choosing the Right Lime Product

Product selection depends on project requirements and engineering specifications. The table below lists recommended products by application.

Application	Recommended Product
Soil stabilisation	Hydrated Lime
Soil modification	Quicklime or Hydrated Lime
Road construction	Hydrated Lime
Civil infrastructure	Hydrated Lime
Reactive soil treatment	Quicklime or Hydrated Lime

The final choice should reflect project-specific requirements and technical advice.

