

KALIC HS LIQUID LIME

Alkali treatment for effluent
and waste water systems





**Kalic HS Liquid
Lime from Tarmac
is the ultimate alkali
treatment for
effluent and waste
water systems.**

While it's widely known that lime is used in the treatment of drinking water, essential in keeping people healthy, it also plays an important role for industry, power generation and commerce. Without the consistent treatment of waste water and effluent with lime, companies could face high fines and struggle to meet ever more challenging sustainability targets.

This innovative lime is chemically stabilised and offers low controlled viscosity to enable easy and consistent handling characteristics, without the difficulties associated with powder or slurry handling. Non-toxic and non-corrosive, it is safer for both the environment and for operators to handle compared to other liquid alkalis such as caustic soda.







More sustainable

Offers a more environmentally friendly alternative to caustic soda in the treatment of industrial effluents.



Lower operational costs

Kalic HS Liquid Lime has low cost storage and handling, in turn reducing operational and maintenance efforts.



Safety first

Non-toxic and non-corrosive, it is safer for both the environment and for operators to handle.



Easy storage

With a freezing point of 0°C, storage systems seldom require heating.



Long-term stability

Kalic HS Liquid Lime has proven its excellent stability against settlement through extensive long-term production and field trials.



Fully regulated

Kalic HS Liquid Lime is quality assured and produced in accordance with Quality Management Standard ISO 9001 and Environment Standard ISO 14001.

HOW IT WORKS

Kalic HS Liquid Lime is a readymade, chemically stabilised suspension of calcium hydroxide in water (milk of lime). With typical solids concentration of 45% w/w, it can be handled as a liquid eliminating the difficulties associated with powder or slurry.

Temperature control

Kalic HS Liquid Lime freezes at 0°C allowing for easy storage, however freezing and thawing will increase the particle size and can make handling more difficult.

Supply and delivery

Normal supply is by articulated bulk air pressure road tanker in lot sizes up to 28 tonnes (20,000ltrs). Bulk deliveries are via a two-inch BS Table D flanged connection. Kalic HS Liquid Lime can also be supplied by our appointed distributor in 1,000-litre IBCs that are left on the customer's site. Clean and empty Intermediate Bulk Containers can later be collected for recycling free of charge.

CHARACTERISTICS

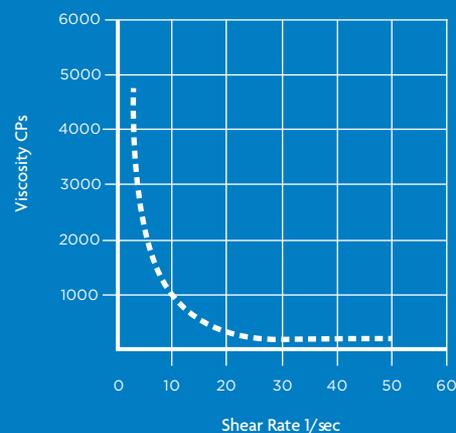
Form	Milky white liquid
Solids	45% w/w
pH	12.4
Density	1.4g/cm ³
Particle size	Median approx 3 microns
Freezing Point	0°C
Boiling Point	100°C
Viscosity	Kalic HS Liquid Lime is pseudoplastic (shear thinning)

ARTICULATED BULK DELIVERY TANKER DIMENSIONS

No. of axles	6
GVW	44 tonnes
Payload	28 tonnes
Overall Height	4 metres
Width (excl. mirrors)	25 metres
Length	16.5 metres
Wheelbase	1.3 metres
Turning circle	outer diameter 25 metres

(Access must be suitable for vehicles of this size)

TYPICAL VISCOSITY CHARACTERISTICS





HOW TO STORE

CONSTRUCTION MATERIALS

Mild and stainless steel, Glass Reinforced Plastic (GRP) and most engineering plastics are suitable. Do not use aluminium, brass, bronze, lead or zinc in contact with Kalic HS Liquid Lime, as all of these materials are dissolved by calcium hydroxide solutions.

BULK TANKS

Tanks must be bunded and fitted with high level alarms that are audible and visible at the filling/offload point. Ultrasonic or load cell contents measurement systems are recommended. External tanks in exposed locations may require trace heating to tank and associated pipework. Flat based, rectangular and oblong tanks have been used successfully. Please consult Tarmac Lime and Powders to discuss the suitability of your proposed application.

Two basic configurations are recommended for Kalic HS. Either a dished base tank with centrally mounted impeller, or a steep cone base tank with a recirculation system.

Tank with agitator (Figure 1)

Agitator of minimum 50% tank diameter, downward pumping impeller of hi-solids type, operating at 30-60rpm. Operating time – one hour per day.

Fill pipe 50mm min ID. Swept bends. Isolator valve at fill point. 2 inch, BS Table D flange coupling.

Tank with recirculation (Figure 2)

Recirculation pump. Open impeller centrifugal pump with mechanical seal recommended. Minimum output 50% of tank capacity per hour. Continuous recirculation is not recommended, as this can cause viscosity changes. Maximum operating time – two hours per day.

HORIZONTAL CYLINDRICAL TANKS

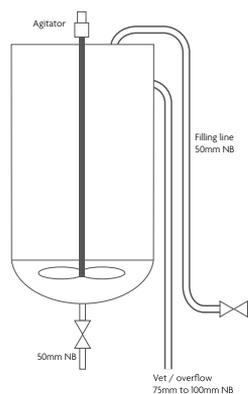
Recommended configuration is for a recirculation agitation system (Figure 3). Return pipe designed to distribute the material across the bottom of the tank. Recommend open impeller centrifugal pump and pump operation, as also used in the recirculating vertical tank system.

INTERMEDIATE BULK CONTAINERS (IBC)

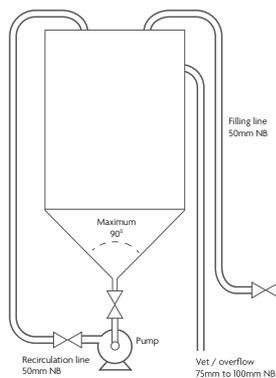
Full IBC weight: 1,470kg. Outlet connection is 50mm buttress thread.

Kalic HS in IBCs is best used within a week of delivery. After this the solids tend to become more viscous due to gradual settlement and it is necessary to agitate the contents to achieve complete emptying of the IBC. Agitation can be achieved using a top-mounted mixer with impeller diameter of at least 300mm. The blades need to be of a folding type, as the IBC top hatch is 150mm in diameter. Air sparging can also be used, but only once or twice per IBC as this can produce grit and scale in the product by reaction of the calcium hydroxide with carbon dioxide in the air.

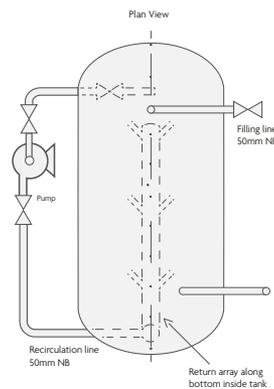
TANK WITH AGITATOR (FIGURE 1)

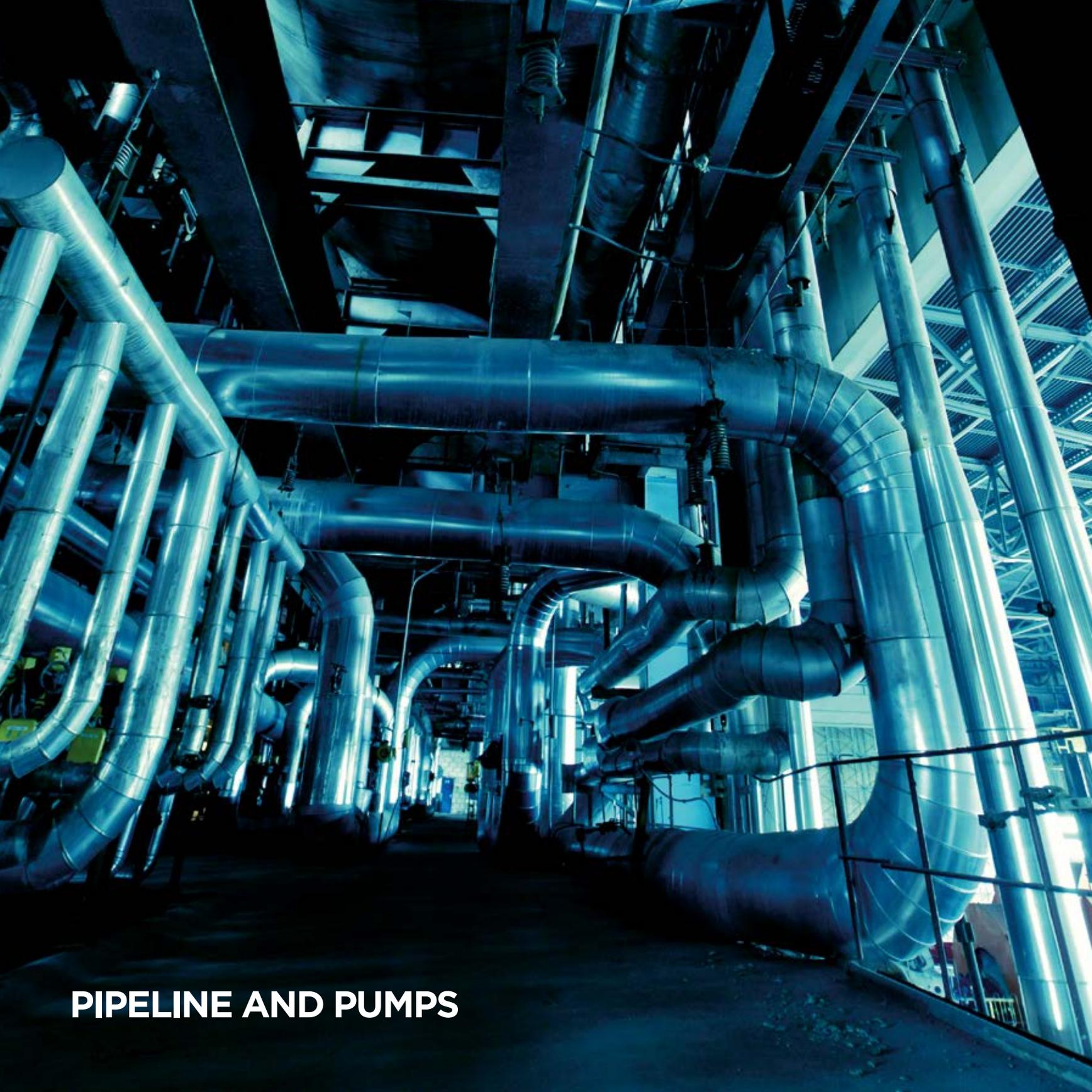


TANK WITH RECIRCULATION (FIGURE 2)



RECIRCULATION AGITATION SYSTEM (FIGURE 3)





PIPELINE AND PUMPS

HANDLING SYSTEMS

All pipework handling Kalic HS Liquid Lime should have smooth internal profiles with swept bends and no abrupt changes in section. In particular, it is important that any reduction in diameter in the direction of flow must be made using tapered sections and avoid the use of hosedails or similar connectors that cause an abrupt reduction in internal diameter within the body of the pipeline.

The basic type of handling system recommended is a 'static' type, where dosing pumps or valves are supplied by the static head of material. Maintain a head of at least one metre above the dosing pump inlet or discharge valve when the storage tank is at low level. The pipeline from the storage tank to the dosing pump or valve should be 50mm in diameter and less than five metres in length.

Recirculating systems

The recirculation pipeline should be at least 25mm in diameter for small systems (less than 20 cubic metres) and 50mm in diameter for larger systems.

Recirculating pumps

Open impeller centrifugal with mechanical seal. Peristaltic pumps are also suitable, and progressive cavity pumps can be used (recommend no more than 30% of maximum output for continuous duty).

DOSING SYSTEMS

Dosing pumps

Peristaltic pumps are recommended. Diaphragm pumps are also suitable. Non-return valves for diaphragm pumps should incorporate stainless steel balls with some clearance in the valve body to avoid 'stiction' from small solid particles on the guide vanes.

Progressive cavity pumps are also suitable. These should be sized to run at no more than 30% of maximum speed on a continuous basis to avoid excessive s tator wear.

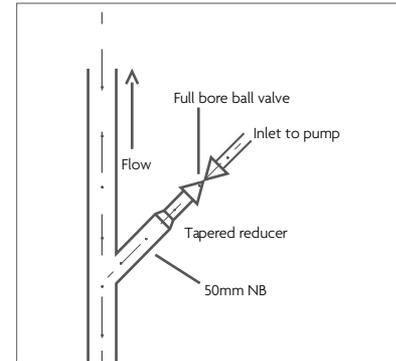
Dosing pipelines and valves

Minimum diameter 12mm for distances up to 15 metres and low dose rates, and 25mm for larger distances and higher dose rates. Use smooth internal profiles and swept bends. Pipeline velocity is normally not important as Kalic HS Liquid Lime does not settle significantly or 'sludge up' in pipelines. However, very long pipelines and low dosing rates can cause difficulties and in such circumstances Tarmac Lime and Powders should be contacted for advice.

Valves should be of full bore ball type for isolation, and pinch type for flow control. Back pressure valves, if fitted, should be of pinch type.

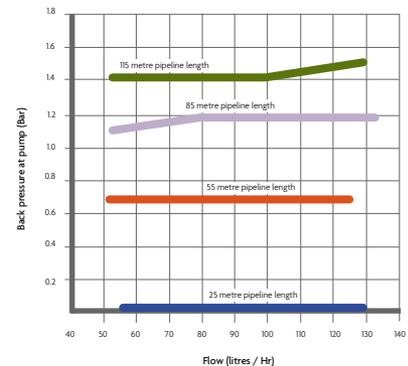
ILLUSTRATION OF TYPICAL PIPEWORK DETAIL AND PUMP PRESSURE GUIDES

Details of connection to dosing pumps (Figure 4)



Dosing pipeline 25mm ID (Figure 5)

(typical peristaltic pump pressures)



SUSTAINABILITY

Tarmac is the ultimate construction products solution provider.
One company with one vision. Committed to safety. Dedicated to sustainability.

Combining industry-leading innovation and market-leading supply and distribution, we offer the ultimate range of products and services:

Aggregates for concrete, asphalt and mortar production, sub-base construction, capping, drainage and landscaping.

Asphalt and Contracting Services for infrastructure, motorways, roads, car parks, footpaths, sports facilities, stadiums and runways.

Readymix Concrete and Cement for the construction of homes, power stations, water treatment works, freight depots, ports, office buildings and shopping malls.

Lime and Powders for water purification, soil stabilisation, land reclamation and the manufacture of iron and steel, plastics, glass, pharmaceuticals and animal feed.

Our solutions play a pivotal role in delivering the services on which we all rely. Fresh food on supermarket shelves. Clean water on tap. Electricity at the touch of a button.

Maintaining these services is a big responsibility. And one that we don't take lightly. We work closely with clients, contractors and partners across the supply chain to make sure that the solutions we deliver are not only practical and cost-effective, but also long-lasting and sustainable.

All of our products are responsibly sourced in accordance with BES 6001. Our asphalt and concrete mixes increasingly contain up to 50% recycled content, and we are the UK's leading supplier of recycled construction materials.

Delivering sustainable solutions is what our business is all about. It's what we do. It's what Britain's built on.



MORE ANSWERS

For more information about Tarmac
Kalic HS Liquid Lime contact your local regional
office or visit [tarmac.com/kalic](https://www.tarmac.com/kalic)

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