



Green1 Technologies have developed a fully automated system to deal with high pH levels in concrete wash from work carried out on construction sites. This system is economical, reliable and uses telemetry to monitor and record live updates to maintain pH levels and turbidity on site. Depending on the system size it can be fully solar powered with 12volt DC battery or run on a normal power supply.

THE ENVIRONMENTAL IMPACT OF CEMENT WASH WATER/ PRODUCTS

Concrete wash water is caustic and usually has a high pH value ranging between 11 and 13 on a scale that runs from 1 (very acidic) to 14 (highly alkaline), making it extremely corrosive. It contains dissolved solids including sulphates and hydroxides from cement, oil and grease from equipment used on site. It takes 1,000,000L of water to dilute 1L of concrete wash.

Concrete wash water is highly toxic to fish and other aquatic wildlife, it can cause damage to vegetation and ecosystems and with prolonged skin contact is capable of causing second degree burns. Sometimes, people refer to concrete wash water as the "silent polluter" with such major environmental impacts.

The construction sector in New Zealand has always encouraged the implementation of best environmental practice and has supported this through a lot of "green" initiatives. Our company is providing a solution to one such hazard by the treatment and the disposal of water associated with concreting activities.



HOW THE SYSTEM WORKS:

GREEN1's concrete wash system unit has been designed to give full control to the user and it allows easy integration of pH monitoring. The unit has a magnetic flow meter on the concrete wash water inlet to detect the flow. A dosing pump uses Polyaluminium Chloride (PAC) to separate the coarse concrete particles and allow them to settle in the filtration tank which has a lamella clarifier segregating solids from liquid which streams to the buffer tank. This process is monitored through an automatic pH controller. The pH monitoring smart system measures pH in the filtration tank and if the pH level rises above 11, it signals the pump to divert the water in the buffer tank and alerts an operator through text message. The pH limit can be adjusted as per requirement. The buffer tank has another pH monitoring system that updates the operator with live data information. Supplementary pH adjustment occurs in the buffer tank neutralising the pH.

pH of Common Substances

ACIDIC			NEUTRAL		ALKALINE OR BASIC									
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Battery Acid	Stomach Acid (Hydrochloric)	Lemon Juice, Vinegar Coke and Pepsi	Grapefruit and Orange Juice	Apples, Dr. Pepper Soda Tomato Juice, Beer	Acid Rain, 7-UP Soda	Black Coffee, Pepto Bismol Healthy Skin, Hair and Nails Urine, Saliva, Milk	"Pure" Water, Blood Shampoos (7.0 to 10.0)	Baking Soda, Seawater, Eggs Perm Solutions (8.5 to 9.5) Toothpaste, Hand Soap	Milk of Magnesia, Mild Detergent	Household Ammonia and Cleaners Soapy Water	Hair Straighteners (11.5 to 14.0)	Bleach, Oven Cleaner	Liquid Drain Cleaner, Caustic Soda	

BENEFITS:

- Eases manpower through automation
- Reduces chemical usage for an eco-friendly environment
- Affordable with low maintenance cost
- Highly accurate and easy data management system
- Telemetry provides live data updates accessible anywhere
- Can be customised as per requirement

DOSING DEVICES

DEWATERING SYSTEMS

DUST CONTROL

CONCRETE WASH SYSTEM by GREEN1 Technologies Ltd.

