



**Chemical  
Solutions**  
LIMITED

# ENVIRONMENTAL SUSTAINABILITY OVERVIEW

September 2023



## About Chemical Solutions

A proudly NZ owned and operated cleaning chemicals company, developing and manufacturing a wide variety of cleaning and hygiene products. Our leading Kemsol brand is successfully sold throughout NZ and the Pacific Islands. Our formulation starting point is making sure that products are safe in use, cost effective and to offer minimal harm to the environment.

# CONTENTS

- 1 Environmental Sustainability at Chemical Solutions
- 2 What we do
- 3 Formulations  
Sustainable raw materials and sourcing
- 4 Innovation 1: Go Green!
- 5 Innovation 2: Concentrate, please!
- 6 Packaging
- 7 How we do it
- 8 Premises  
Water  
Energy
- 9 Initiatives taken
- 10 Waste  
Solid waste to production volume over the years
- 11 Recycled Materials  
Compliance
- 12 Not the final word

# ENVIRONMENTAL SUSTAINABILITY AT CHEMICAL SOLUTIONS

30 years ago, Chemical Solutions were founded on a bit of a radical notion: that a company can be successful in a marketplace by developing and manufacturing safe and environmentally responsible cleaning products.

We know now more than ever that human activities, industries and products have many impacts on the environment. Chemical Solutions' core business value is to minimise these impacts. We are committed to continuous improvement in our environmental performance.

## OUR GOALS ARE TO:



Release no air, water, or environmental pollutants from our manufacturing process.



Formulate and produce products based on raw materials derived from sustainable sources.



Reduce water consumption by utilising captured rainwater.



Reduce waste to landfill.



Recycle as much as possible from manufacturing processes.



Optimise energy consumption.

# WHAT WE DO





## FORMULATIONS

We have always had a policy of formulating products that will not only work effectively in the marketplace but offer minimal risks to the users and the environment.

## SUSTAINABLE RAW MATERIALS AND SOURCING

We use surfactants derived from coconut oil, glucose, and other sustainably sourced natural materials, and it all started when our company founder Peter Vaughn began sustainable manufacturing by successfully using sugar-based raw materials in contract manufactured cleaning products. A world first – right here in NZ!

We only work with reputable raw material suppliers that are transparent about the origin of materials and their supply chain practices.



# PRODUCT FOCUS 1: GO GREEN!

Kemsol Green is a cleaning product range developed to reduce workers' exposure to chemicals, waste, and energy consumption, from formulation all the way to packaging and labelling.

## The Kemsol Green Fine Print

# Kemsol Green



### BIODEGRADABILITY

All surfactants used are all readily biodegradable in normal waste channels and meet or exceed EU/OECD biodegradability standards. None of the raw materials have any bioaccumulation risks.

### PHOSPHATES

Phosphates are harmful to slow moving waterways because they cause algae to grow, which takes oxygen out of the water and suffocates fish. Our products have been formulated to contain no more than 0.5% (by weight) of elemental phosphorous.

### NO NASTY INGREDIENTS

Chelating agents such as EDTA or NTA, Reactive chlorine compounds such as Sodium Hypochlorite, Organic carriers of chlorine such as Triclosan, Chlorinated solvents, Optical brighteners, Alkylphenol ethoxylates, Quaternary ammonium salts.

### PALM OIL

Where we can, we use RSPO certified palm oil. RSPO (Roundtable on Sustainable Palm Oil) certified products offer assurance of palm oil produced without deforestation and natural habitat conversion.

### ECO-TOXICITY

Many cleaning products ultimately end up in wastewater systems. Our Green products have been designed to have low aquatic toxicity levels.

### RISK TO USERS

Our Green products have been formulated to have a low hazard profile for end users and are not classed as corrosive nor are they flammable.

### INDOOR AIR QUALITY

Materials used in some cleaning products are often volatile and can lower the air quality of indoor areas. When diluted correctly the Green products do not contain substances that contribute significantly to the poor indoor-air quality.

### DYES

Green products use only food-grade dyes that are fully biodegradable. Minimal amounts of dye are used to differentiate each product for safety and ease of use.

### FRAGRANCES

All fragrances used in Green products are in accordance with the International Fragrance Association (IFRA) Code of Practice, which ensures you get the safest and most user-friendly products for people and the environment.

### DID YOU KNOW?

#### **TRICLOSAN**

*A synthetic chemical commonly found in consumer products. It has suspected health risks such as endocrine disruption and antibiotic resistance and is toxic to aquatic organisms.*

# PRODUCT FOCUS 2: CONCENTRATE, PLEASE!

Cleaning concentrates provide a concentrated cleaning solution in a bulk container and are diluted with water before use. Compared to ready-to-use products (RTU), concentrates **cost less per diluted unit**, use **less packaging materials**, **lower transportation and storage costs** and make **less waste**, making them a much more sustainable option.



2L **VS.** 5L



**KEMSOL K8 NEUTRAL ANTIBACTERIAL CLEANER**  
Ultra-Concentrated Neutral Cleaner

**GENERIC NEUTRAL CLEANER**  
Ready-To-Use Standard Neutral Cleaner

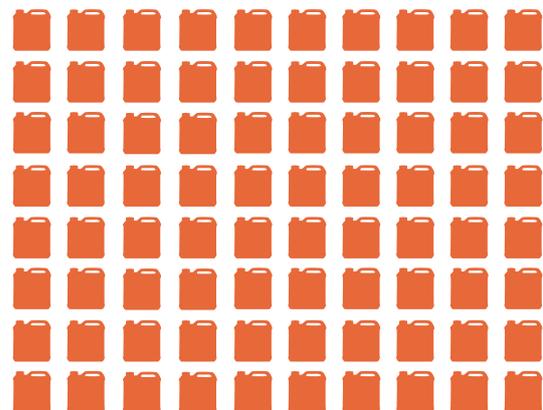
JUST A **UC** 2 LITRE SINGLE CONTAINER

MAKES A HUGE **400L** OF RTU SOLUTION\*

\*based on K8 dilution rate for floor and general hard surface applications (5ml makes 1L RTU solution)

USING **K8 NEUTRAL CLEANER** GENERATES **99%** LESS PACKAGING WASTE

**EIGHTY**



**5 LITRE CONTAINERS NEEDED TO MAKE THE SAME AMOUNT\***

ONE **TRUCK LOAD\*** OF K8 NEUTRAL CLEANER REPLACES UP TO **200** TRUCK LOADS\* OF 5L STANDARD RTU CLEANER.  
\*based on a NB (medium class vehicle) carrying 12 tonnes of product.

WHICH MEANS **SHIPPED IN LESS SPACE** MORE PRODUCT AND FEWER TRUCKS ON THE ROAD,

EASING UP ON EMISSIONS, AND USE OF FUEL.

WITH THIS ULTRA CONCENTRATED PRODUCT WE'VE SAVED **7 TONNES** OF PLASTIC FROM ENDING UP IN A LANDFILL.\*

\*based on total sales of Kemsol K8 in 2022.





# PACKAGING

## Embracing sustainability and uniqueness with Kemsol Green 100% recycled product bottles

Plastic packaging does not have to harm our natural ecosystem. Kemsol Green containers are made in New Zealand from 100% recycled plastic collected around New Zealand.

### A Testament to Recycling Success

Kemsol Green recycled bottles proudly display an array of colours because they are the outcome of a successful recycling process. As different types of plastic materials are reclaimed and reprocessed, they blend harmoniously to create distinctive variations.

### Environmental Responsibility

By choosing Kemsol Green, you directly contribute to reducing the demand for new plastic production, which helps conserve natural resources and decreases the carbon footprint associated with manufacturing.

### Circular Economy Support

Opting for 100% recycled bottles fosters a circular economy, where plastic waste is continually repurposed and given new life. By supporting this closed-loop system, you promote sustainability throughout the supply chain.



#### Reuse & Recycle

Other packaging we use is made of high-density Type-2 polyethylene (HDPE), suitable for reuse and/or readily recyclable, following triple rinsing and removal of labels for most products.



#### Labelling

Labels are laminated to give long-term durability and chemical resistance. They have a semi-permanent adhesive to allow easy removal for recycling or repackaging.

# HOW WE DO IT



Formulating great cleaning products is not enough. We also want to reinvent the ways in which they are made while working towards our environmental performance goals.



## PREMISES

Our Airport Oaks site was commissioned in June 2004 and was the first chemical manufacturing plant in New Zealand to achieve Location Test Certification under the HSNO Act.

The office was renovated with double glazing and energy efficient LED lighting to conserve power. Recessed windows reduce direct sunlight in summer to reduce cooling costs.

The factory roof is fitted with skylights to reduce energy consumption. We also have large liquid blending and powder mixing facilities to improve energy efficiency and reduce wastewater requirements.

## WATER

We have a rainwater catchment system used for the washing of mixing vats and to wash out containers to be reused or recycled. Taking into account Auckland's average rainfall per year, we estimate this system us to reduce our mains water supply usage by up to 40%.

We contain the wastewater in a holding tank and treat it prior to discharge to trade waste. The wastewater is measured before discharge so we can compare year on year volumes against production output.

## ENERGY

We monitor our energy usage and look for opportunities to reduce it or gain maximum benefit via economies of scale in production.



# What initiatives have we taken to reduce energy use and improve energy efficiency?



2018  
- 2022

98% of all lights converted to LED

2018  
- 2020

Installed a second larger cardboard and packaging compactor, which is keeping our recycling and landfill bins compact and while the production has increased over the years, our bin clearance volume has remains on the same level

2019  
- 2022

Completed new full fit of racking allowing for more finished packed goods to be held, increasing batch sizes of products and the frequency of making products, which in turn reduces energy used

2019  
- 2020

Actions taken to reduce the amount of paper we use

- the customer service team updated the processing of orders to reduce paper usage by 50%
- the sales team have moved to a paperless customer site audit system and only use digital reports
- we use Safe 365 digital system, making all our reporting, audits, check lists paperless
- all laboratory QC records are now captured digitally

2020

The 4x5L pack size cartons were changed to 3x5L with carry handles for safer handling

2021  
- 2022

All Kemsol Green 5L packaging has been switched to 100% recycled plastic rather than virgin plastic material bottles

2022  
- 2023

We have installed a new mezzanine floor in our packing section of the production area, this has double the floor space in the area and allowed space for our new high speed, multipurpose automated filling/bottling line which will give us greater efficiencies

## MORE TO COME

*We continue to investigate the feasibility of installing solar panels on our production and admin roof with the view to generating power to be used in daily production. We foresee this been something that could be done in the next 2 years.*



# SOLID WASTE VS. PRODUCTION VOLUME

We take the responsibility for the waste created by our products and processes, and we take action to reduce the landfill waste we generate by:



Finished product packaging is recycled, reusable and recyclable.



Using recycled shipping pallets and raw material steel drums.



Using product labels with non-permanent adhesives for easy removal.

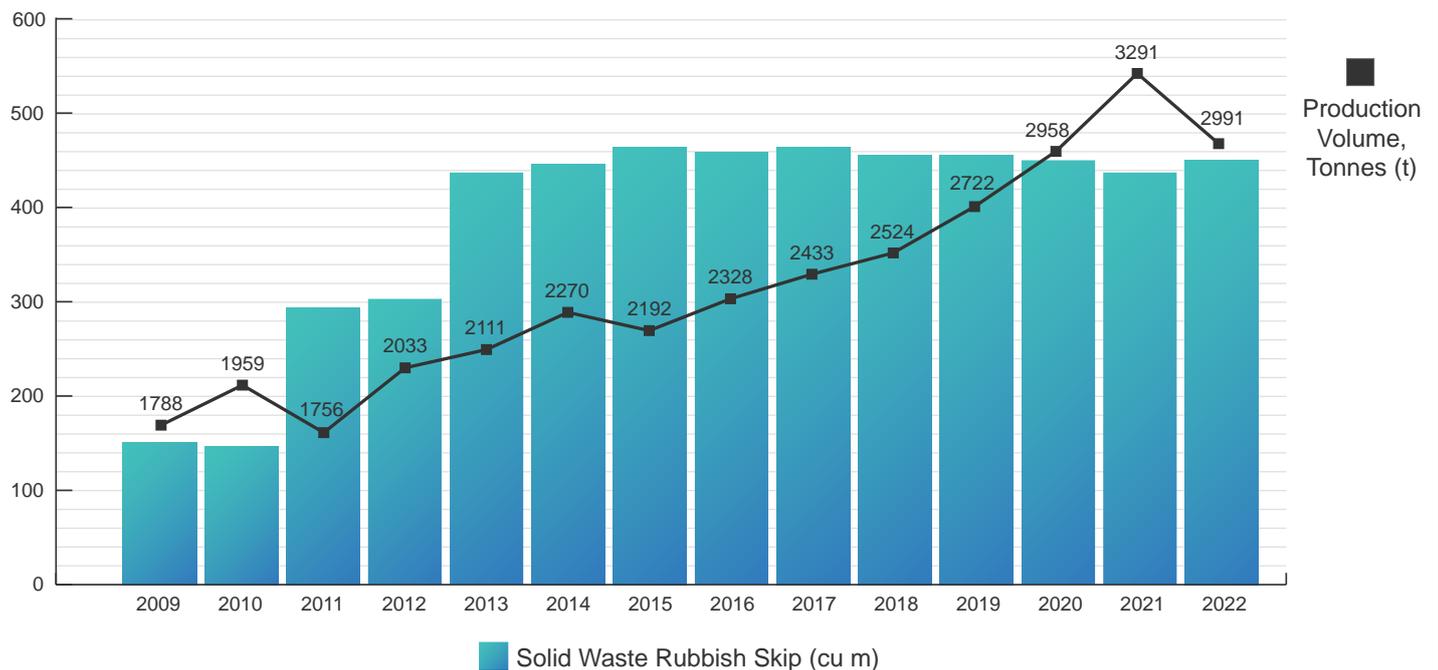


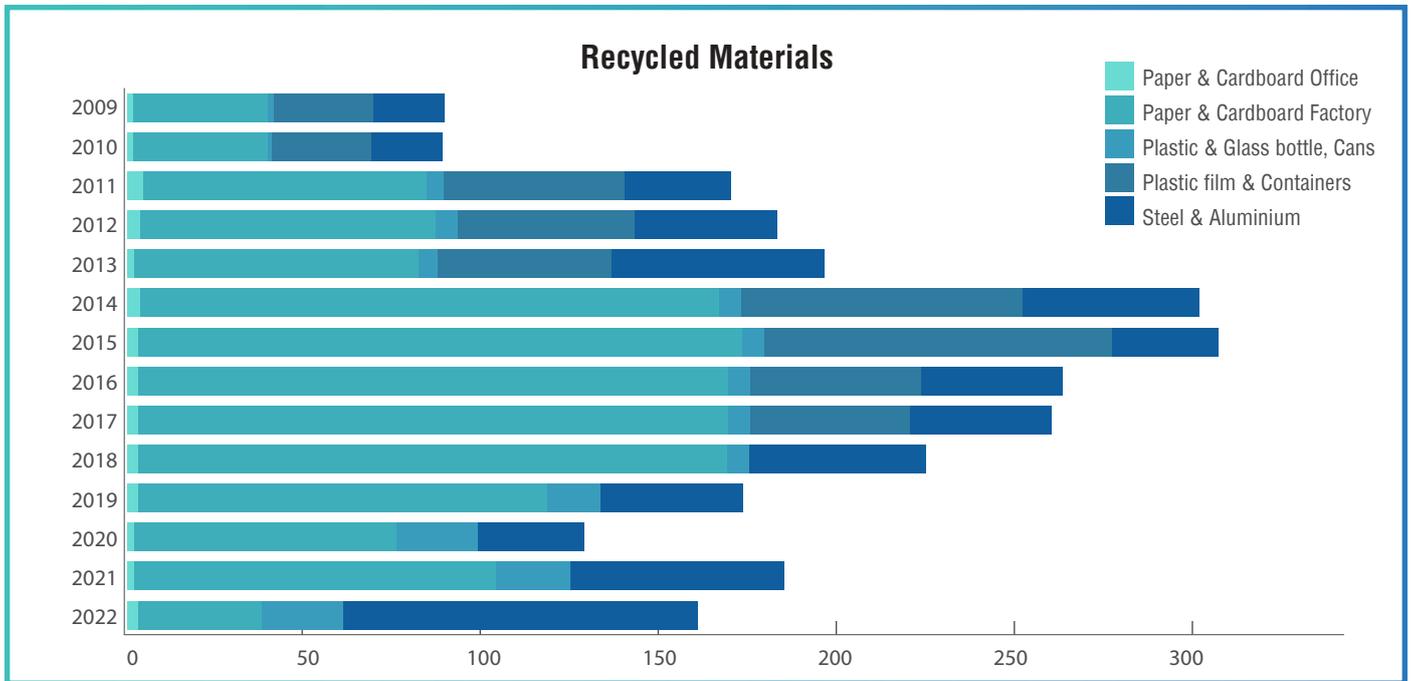
Manufacturing an extensive range of concentrates and ultra concentrate products.



Using a waste compactor to reduce the solid waste during the production.

### Solid waste to production volume over the years





## COMPLIANCE

### ECO CHOICE AOTEAROA

Every year we are audited by Eco Choice Aotearoa (previously ECNZ or Environmental Choice New Zealand), who check and monitor our product criteria adherence, environmental safety, energy efficiency and waste minimisation. Using products that are Eco Choice Aotearoa licensed means using independently verified, high quality and compliant green products.

### SITewise GREEN

SiteWise is a prequalification system that grades a contractor’s health & safety capability and publishes that grade in a database that can be viewed by main contractor’s and principal organisations. This allows for better contractor selection and an easier tendering process for everyone involved.

In 2022 we have achieved a SiteWise Green status with a score of 76%. That means:

- We have demonstrated that we have quality health and safety systems in place.
- We’ll be listed as a green business in the database that shows to all principals that we use SiteWise as a prequalification tool.



# NOT THE FINAL WORD: PROGRESS, NOT PERFECTION

As a team we take accountability in everything we do. How we source raw materials, how we interact with our customers, how we keep our team safe in their work, how we interface with the environment and our place in our community. We always want to go home at night to sleep well, knowing we have done the right thing.

*We appreciate you joining  
us on this journey.*

# Chemical Solutions

LIMITED

## Contact Us



P +64 9 255 5609



1 Freight Place, Airport Oaks, Auckland  
105 Rutherford Street, Woolston, Christchurch



[sales@chemicalsolutions.co.nz](mailto:sales@chemicalsolutions.co.nz)  
[WWW.CHEMICALSOLUTIONS.CO.NZ](http://WWW.CHEMICALSOLUTIONS.CO.NZ)