

Napisan and 'Look-Alikes' - Use in Septic Tanks



An important notice - but is it correct? Pic courtesy exploroz.com

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There is ongoing debate over the use of Napisan and Napisan "look-alikes" in portable toilets, and in particular, whether it could be harmful to septic tanks.

The labeling of the Napisan 'look-alikes' (Nappy Treatment Plus, Ultra Booster Everyday Plus Laundry Soaker, Laundry Soaker and Inwash Booster etc.) sold by the major supermarket chains, state clearly that these products are safe for septic tanks.

In this paper kindly provided by Ian Jenkins (retired Professor of Chemistry and now Professor Emeritus at Griffith University), Professor Jenkins states:

'In my opinion, sodium percarbonate is probably the cheapest, safest, and most effective product to use in portable toilets, provided it is used as directed'.

Professor Jenkins' Paper

Thirty years ago, the active ingredient of Napisan was potassium monopersulfate (KHSO_5) which oxidises sodium chloride to sodium hypochlorite, i.e., bleach [H. Gaya et al, J. Hyg., Camb. 1979, 82,463].

Sodium hypochlorite, in sufficient quantities, could lead to failure of septic tanks.

About twelve years ago, the main bleaching agent used was sodium perborate (NaBO_3), a much milder reagent than chlorine bleach. Although relatively non toxic, public and government concerns over the boron content of sodium perborate led to it being replaced by the laundry bleaching agent sodium percarbonate [M. McCoy, Chemical and Engineering News, 2003, Volume 81, Number 3, p. 17].

Today, Napisan contains sodium carbonate (30-60%), sodium percarbonate (10-30%), sodium sulfate (10-30%) and small quantities of surfactants. The 'look-alikes' appear to consist of very similar mixtures.

The active ingredient in all cases is sodium percarbonate, made by mixing sodium carbonate (washing soda) with hydrogen peroxide. It has the formula $2\text{Na}_2\text{CO}_3 \cdot 3\text{H}_2\text{O}_2$. When dissolved in water, it forms sodium carbonate and hydrogen peroxide. Hydrogen peroxide oxidises smelly thio compounds such as hydrogen sulfide, methanethiol, dimethyl sulfide, and nitrogen-containing compounds such as skatole found in human waste [H. Sato et al, Journal of Health Science, 2001, 47, 483].

In the absence of organic material, hydrogen peroxide decomposes slowly forming oxygen and water. By the time you empty your portable toilet, there would be very little hydrogen peroxide or sodium percarbonate remaining (hence it should have a negligible effect on septic systems).

Sodium percarbonate is often used in eco-friendly cleaning products, and is the active ingredient of Odour-B-Gone. According to the labeling, the surfactants present in at least two of the Napisan look-alikes ('Ultra Booster Everyday Plus Laundry Soaker', and 'Laundry Soaker and Inwash Booster') are biodegradable. (The term 'thio' – when applied to a chemical, such as an ion, means that an oxygen atom in the compound has been replaced by a sulfur atom – Ed).

Sodium carbonate (washing soda) and sodium sulfate (Glauber's salt) are both naturally occurring chemicals and are relatively non-toxic (you would need to swallow a very large amount of washing soda to kill you). Hydrogen peroxide is an environmentally safe antimicrobial agent. It is produced naturally in the human body and in biological systems generally. However, like everything in this world, too much can be harmful. This was recognized 500 years ago by Paracelsus "All substances are poisons; there is none that is not. The right dose differentiates between a poison and a remedy".

I have been using sodium percarbonate (Nappy Treatment Plus, Laundry Soaker and Inwash Booster, Ultra Booster Everyday Plus Laundry Soaker) or various similar products available from the major supermarket chains for \$2.50-\$4.00/kg; all contain between 280 and 346g/kg of sodium percarbonate, are made in Australia from local and imported ingredients, and are generally labelled "safe for septic tanks") for the past 5 years and have found it to give excellent results. You can also use Vanish (Napisan, made in Korea) but it is more expensive.

When purchasing Napisan or Napisan look-alikes, read the label carefully (the supermarkets sometimes change the name of the product or what is on the label, and the contents are often in very small print). Look for the amount of sodium

percarbonate (>300g/kg, is best), 'safe for septic tanks' and 'surfactants are biodegradable'. Pure (100%) sodium percarbonate would probably be preferable, but does not appear to be readily obtainable in Australia. It can be purchased in New Zealand (for example, SoapNuts Oxygen Bleach). Sodium percarbonate (100%) can be bought in bulk from brewing supply companies for about \$5.50 a kilo.

Instructions: Add 2 level tablespoons (1 level cap-full) of sodium percarbonate (Ultra Booster Everyday Plus Laundry Soaker, or equivalent) to one litre of water, stir for a few minutes then pour into lower tank of portable toilet (20 litre capacity). Wash any undissolved powder into the tank with a further one litre (4 cups) of water. I also dissolve 1 level tablespoon of sodium percarbonate in the water in the flush tank (9 litre). As with all chemicals, keep out of reach of children and avoid contact with skin, and eyes in particular. Never mix other chemicals with it.