



TUWAI SPECIALTIES

Applied industrial chemistry

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CERTIFICATE OF ANALYSIS

SAMPLE DESCRIPTION: Range of 11 x Washing Machine cleaning products - available in Supermarkets
Customer: Rubbedin Pty Ltd
Sample Reference Number: NA (samples purchased from major supermarkets)
Sample Dates: May 2021 – July 2023

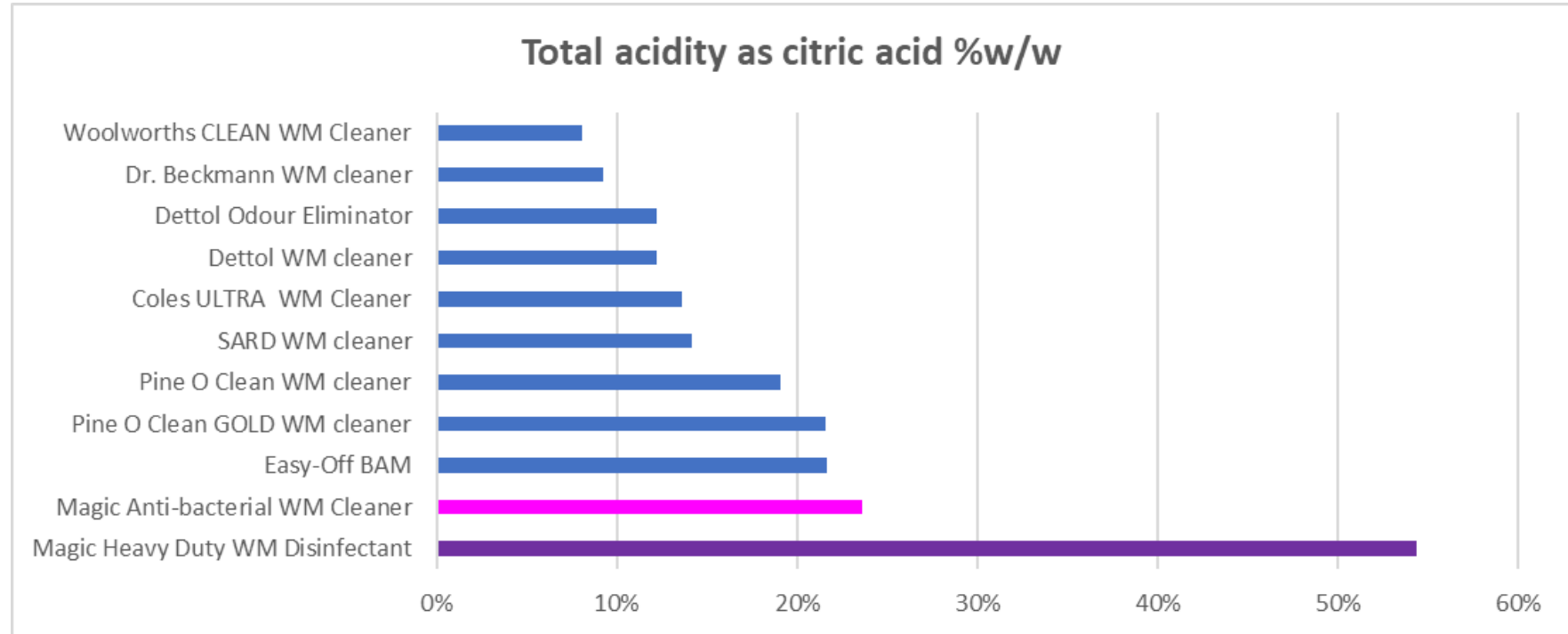
Product (WM = Washing Machine)	Made in	Form & Pack Size	Dose g / mL for Front Loader	Dose g / mL for Front Loader	Classification	Colour	Odour	pH neat	pH @1%	Refractive Index % w/w actives	% w/w actives	'Active acidity' as Citric acid %w/w	'Total acidity' as Citric acid %w/w	Ranking by Total Acidity
Method	label	visual	label	label	label	visual	scent	pH meter	pH meter	Refractometer	NA	LM007 - Titration with 0.1N NaOH to pH 3.8	LM007 - Titration with 0.1N NaOH to pH 8.1	Acid strength
Magic Heavy Duty WM Disinfectant	Australia	Powder 250g	250	2 x 250	S5 Caution NDG	white	Bio Fresh	PDR	1.75	NA	99g/kg Sulfamic acid 500g/kg citric acid	24.748	54.374	1
Magic Anti-bacterial WM Cleaner	Australia	Powder 100g	100	2 x 100	S5 Caution NDG	white	Bio Fresh	PDR	1.85	NA	99g/kg Sulfamic acid 200g/kg citric acid	13.485	23.642	2
Easy-Off BAM	Portugal	Liquid 250mL	250	2 x 250	DG 8	Blue	Floral	2.55	2.90	27	Citric acid 10-30% Lactic acid <5% Quats <3%	6.172	21.662	3
Pine O Clean GOLD WM cleaner	Portugal	Liquid 250mL	250	2 x 250	DG 8	Blue	Floral	2.31	2.82	27	Citric acid 10-30% Lactic acid 4% Quats 1.5%	5.155	21.59	4
Pine O Clean WM cleaner	Portugal	liquid 250mL	250	2 x 250	NA	green	floral	1.50	2.57	21	Dual quats <3%	6.673	19.110	5
SARD WM cleaner	Not stated	Powder 2x75g sachets	75	75	S6 Poison DG 8	white	floral	PDR	1.5	NA	200g/kg sulfamic acid	11.85	14.170	6
Coles ULTRA WM Cleaner	Australia	Liquid 250mL	250	250	NA	green	citrus	2.18	3.15	19	Not available	5.952	13.588	7
Dettol WM cleaner	Portugal	Viscous liquid 250mL	250	250	NA	green	floral	2.56	2.85	18	9.99% lactic acid, 2.25% quat 0.13% dodecylamine	3.605	12.233	8
Dettol Odour Eliminator	Portugal	Viscous liquid 250mL	250	2 x 250	NA	green	floral	2.56	2.85	18	9.99% lactic acid, 2.25% quat 0.13% dodecylamine	3.605	12.233	9
Dr. Beckmann WM cleaner	Germany	Gel 250mL	250	250	NA	blue with black specks	floral	2.50	2.87	13	<5% nonionic surfactants	2.467	9.251	10
Woolworths CLEAN WM Cleaner	Australia	Liquid 250mL	250	2 x 250	NA	green	citrus	1.87	2.88	10.5	10.0% lactic acid, 2.25% Quat.	5.140	8.060	11



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Results:

Washing machine cleaning products utilize surfactants and various acidic actives in order to remove built-up deposits, scale, and micro-organisms from washing machines.

Based upon 'Total Acidity' (the total amount of an acid present when neutralised with a standard base – sodium hydroxide) the various washing machine cleaning products are listed from strongest to weakest above.