

**Table 1. Caustic and chlorine contents for registered detergent-sterilizer products on the Irish market (Teagasc, March, 2019. Product names in order of decreasing caustic content.**

Product Name	PCS number	% Caustic	*Working solution (ppm)		% Chlorine	*Working solution (ppm)	
			Hot wash	Cold wash		Hot wash	Cold wash
<b>These products are best used in a daily hot wash with option of re-using solution as a cold wash at the next milking.</b>							
Top Circulation Cleaner	98060	21.46	1073	2146	3.41	171	341
Megasant	96852	20.91	1394	1626	3.0	240	280
Turbosan Co-op Source	96861	20.84	1042	2084	2.85	143	285
LIR Agri Pipeline Steriliser	97824	20.50	1640	1948	2.83	226	269
Kilcosan	97355	20.00	1000	2000	3.4	170	340
Cryosan liquid	96895	18.67	1245	1867	3.45	230	345
Dairygold Hotwash XT	96461	18.34	1467	1651	2.61	209	235
Deosan Diamond	97351	18.02	901	901	2.61	131	131
Hydrosan Liquid	93608	17.69	1179	1769	3.05	203	305
Puresan line cleaner	96216	17.48	1165	1748	2.31	154	231
Unisan Liquid	96944	17.30	1151	1534	2.67	178	237
Liquid Gold	96468	16.93	1174	1411	3.09	214	258
Aquasan	97375	16.80	1344	1493	3.26	261	290
Avalksan	96840	16.54	1286	1470	3.49	271	310
Multisan	93472	16.42	1314	1460	3.43	274	305
Supersan Extra	96574	16.12	1017		3.13	198	
Universan	96324	15.94	1275	1417	3.49	279	310
Alkaklean	97873	14.44	722	1444	2.90	145	290
Alkalex	96595	14.49	966	1449	2.41	161	241
Geasan	97371	14.35	718	1435	3.07	154	307
<b>These products should be used with hot water daily and the solution not recycled.</b>							
DX Auto Tank	98820	12.22	122	x	2.97	297	x
Fullwood Morning Wash	98819	12.20	122	x	2.97	297	x
Dairy Wash Fourtress	98802	11.84	592	1184	2.48	124	248
C-Alka	97769	9.89	495	x	3.12	156	x
Autoklene	95652	9.34	467	x	2.65	133	x
Deosan TC86	94490	9.30	465	x	3.71	185	x
Chlorodex	95654	9.21	461	x	2.84	142	x
DM Cid Ultra*	98175	9.03	903	x	0.00		x
DeLaval Super	97770	8.95	716	x	2.84	227	x
Alkasan	95651	7.86	82	x	1.63	393	x
Dairy-Chlor	96845	7.26	227	454	3.48	109	218
DeLaval Ultra	97768	6.36	318	636	2.55	128	255
Dairycleanse	96846	4.32	269	x	3.04	189	x
<b>These products have higher than recommended levels of chlorine present and should be avoided to minimize residues in milk</b>							
Parlosan	96404	17.14	137	1600	3.68	294	343
CircoactionAF1	96147	10.09	505	x	6.96	348	x
Hyproclor ED	96263	8.75	486	x	4.49	249	x
Purechem circulation	96870	8.58	268	x	4.97	155	
DM Cid	98174	7.63	763	x	4.05	404	x
DX Tank Cleaner	96215	5.12	160	x	4.85	152	x
CircopowerAFM	96148	5.43	190	x	6.13	215	x

BFS Hotwash	98686	1.9	127	x	10.64	709	x
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PCS number = Pesticide control service number, indicates that the product is registered with DAFM and therefore can be legally sold on the Irish market

- Working solutions are calculated based on manufactures recommended usage rates and chemical content of products
- A minimum of 800 ppm of caustic in the working solution is recommended for hot cleaning where the product is reused cold for the afternoon wash. Higher working solutions are required if a hot wash is not used daily
- Lower usage rates may be considered for products with high caustic % when used hot and the solution is not recycled
- Detergents with a lower caustic working solution (<800ppm) will give satisfactory cleaning when used with hot water and the solution is not recycled.
- Increasing the usage rate of products to achieve higher caustic levels may result in non-acceptable levels of chlorine in the working solution.
- Choose products with a chlorine working solution less than 300 ppm.
- \* This product does not contain sodium hypochlorite. The disinfectant agent is Diamine .
- Avoid products with chlorine levels above that recommended for avoidance of residues.
- Products highlighted have chlorine content > 3.5% and/or use high working solutions of chlorine.

**Table 2. Caustic content in liquid detergent products on the Irish market (Teagasc, March, 2019).**

Product names in order of decreasing caustic content in the working solution with cold washing. No PCS number required for these products.

Product Name	Hot wash			Cold wash	
	% Caustic w/w	Usage rate (litre/gram)	*Working solution (ppm)	Usage rate (litre/gram)	*Working solution (ppm)
LactivateClean	39.7	2.5	993	2.5	993
DM Clean Super (CF)	30.0	10.0	3000	X	X
Lely Astri-Lin	29.88	5.0	1494	x	x
Purchem Puresan	29.81	10.0	2319	7.8	2981
Fullwood AMS cleaner	29.36	5.0	2936	x	x
Evans	29.36	5.0	1469	-	-
Alkadex Forte (bulk tank)	29.32	5.0	1466	5.0	1466
Hypral One	28.25	5.0	2825	-	-
Timac CIP	28.08	6.2	1747	8.9	2496
Fourtress Dairy CIP	24.06	10.0	2406	X	X
ParlosanNC**	24.34	10.0	2434	11.1	2704
Multisan CF**	25.42	6.7	1695	10.0	2542
Fourtress Dairy CIP	24.06		2406	X	X
Autoscan Blue Alkaline	23.66	5.0	1183	10.0	2366
Dairy Eco Cleanse	22.36	6.0	1391	9.3	2087
Quantum x L	22.33	2.5	558	x	x
Arkaline-LCF	21.02	5.0	1051	10.0	2102
Autosan Blue	20.93	5.0	1047	10.0	2093
ArkAline-LCF	20.78	.5%	1039	1%	2309
Cipton	20.73	?	?	?	?
CFD100 DeLaval	19.50	5.0	970	10	1940
Avalksan CF	19.34	7.8	1504	8.9	1719
DM Clean Forte***	18.47	5.0	924	5.0	924
Hypral SP	15.88	6.7	1059	x	x
LIR AGRIC Hydra Mil	11.47	10.0	1147	12	1376
Sanagard	10.48	5.0	524	x	x

- Working solutions are calculated based on manufactures recommended usage rates and % caustic measured in products
  - \*\* The addition of hydrogen peroxide to these products is recommended by manufacturers as part of a good cold/hot wash program

\*\*\* Contains high levels of sodium carbonate (12.0%) as an aid to cleaning

**Table 3: Caustic content in powder detergent products on the Irish market (Teagasc, March, 2019).**

Products names are listed in alphabetical order

Product Name	PCS number	Usage rate (litre/gram)	*Working solution (ppm)
			Caustic
Alfasan Plus	N/A	5.6	4500
Aspeto powder	N/A	5.0	6100
BFS cold wash	N/A	5.0	4700
Biosan	N/A	5.0	5400
Cipsan Plus	N/A	5.0	5100
CircodineP***	93464	5.0	2900
Circodine CF	N/A	5.0	2300
Cold Clean Plus	N/A	5.0	4400
Cold wash Evans	N/A	5.0	4300
Cold wash agroserve	N/A	5.0	2700
Cryosan Plus	N/A	5.0	4200
Crystal Powder cold cleaner	N/A	2.5	3600
Dairygold cold circulation cleaner	N/A	5.6	5300
Dairy-clean plus	N/A	5.6	3900
Dairy Cold Wash	N/A	5.0	4500
Dairy-san **	N/A	3.8	1600
De Laval RX5000-San	97349	3.8	1200
Deosan Farm Cold Cleaner	N/A	5.0	4200
DM Cid P	N/A	5.0	2700
Duosan50***	95667	3.1	800
Galvisan cold wash	N/A	5.0	4800
Hydosan Plus	N/A	5.0	3500
Jet Star	N/A	5.0	3600
Kilco Clearway	N/A	5.0	3700
Koldosan	N/A	5.0	2000
Koldklene	N/A	5.0	3900
Locount Extra	N/A	5.0	3200
LIR AGRI Daily Clean	N/A	5.0	3000
Metron powder	N/A	3.8	2700
Muller cold detergent	N/A	5.0	4300
Polarsan Plus	N/A	5.6	4700
Pulver A CF	N/A	5.0	1000
PureChem cold wash	N/A	5.0	3700
PureChem hot wash**	N/A	2.5	1100
Trisan Extra	N/A	3.8	2200
Turboclean	N/A	5.6	5000
Unisan Plus	N/A	5.0	5000

N/A = not applicable (as contains no chlorine)

\*Working solutions are calculated based on manufactures recommended usage rates and chemical content of products

- \*\*\* Products contain some chlorine
- Working solutions above 2000ppm are recommended for powder cold caustic cleaning products containing no chlorine. Lower working solutions (800ppm) of caustic may be used with products containing chlorine and with products recommended to be used with hot water\*\*

- Some products contain high levels of sodium carbonate while other products contain high levels of non caustic alkaline detergents which have additional cleaning benefits.
- An additional acid descale wash should be carried out at a minimum once weekly with all products

**Table 4: Registered acid based cleaning products used for ‘all in one’ cleaning of milking equipment (Teagasc, March, 2019).** Product names listed in alphabetical order.

**\*These products are both chlorine and chlorate free**

<b>Product Name</b>	<b>PCS number</b>	<b>Content</b>	<b>Distributor</b>
Divosan OSA-N	97240	Acid-Nitric, Glycolic, octanoic, octenylsuccinic	Diversey
Hypracid-One	98182	Acid-Methanesulfonic	Grassland Agro