EMD MILLIPORE

Cleaning applications
Extran®

EMD Millipore is a division of Merck KGaA, Darmstadt, Germany

Extran® laboratory cleansers are the perfect solution

for cleaning your laboratory utensils to EMD Millipore's well-known quality standards. Reliable processes in laboratories and product facilities are only possible with thorough, residue-free cleaning.

Only in this way is it possible to ensure proper scientific working procedures. Everything that comes into contact with chemicals or biological substances must be free of impurities, both before and after use.

EMD Millipore's high-quality Extran® cleaning agents have fulfilled these requirements for over 25 years.

Benefits

- Reliable and residue-free cleaning with Extran®.
- Extran® is free from NTA protecting the health of the laboratory staff.
- Extran® is free from scents and dyestuffs and does not contain chlorine or other toxic ingredients.
- The active ingredients in Extran® are biodegradable.
- Extran® is the ideal all-purpose cleaner.

Our premium Extran® cleaners at a glance

Product	properties	pack sizes	application/ concentration	pH	application instructions
Extran® for manual washing					
Extran® MA 01 1.07555 (formerly EX 0993)	liquid, alkaline	2.5 l 10 l 25 l	2–5–20%	11.6–12.0	Universal cleaning agent for heavy contamination. Even for water up to 40 °C hardness. Also for the cleaning of tables, tiles, floors in the laboratory. Also suitable for ultrasound cleaning.
Extran® MA 02 1.07553 (formerly EX 0994)	liquid, neutral	2.5 l 10 l 25 l	2–5%	7.5 (in a 5% solution)	Universal cleaning agent for precision measuring devices made from glass, quartz and sensitive metals. Also suitable for ultrasound cleaning.
NEW Extran® MA 05 1.40000 (substitute for EX 0997)	liquid, alkaline, phosphate-free, free from NTA	2.5 l 10 l 25 l	2–5–20%	11.6–12.0	Universal cleaner for heavy contamination. Can also be used in very hard water without limitations. Environmentally-friendly since phosphate and NTA-free. Also suitable for ultrasound cleaning.
Extran® for cleaning in laboratory washing machines					
Extran® AP 11 1.07558 (formerly EX 1001)	powder, mild, alkaline	2 kg 10 kg 25 kg	0.2–0.4%	11.3	Gentle cleaning e.g. in analytical laboratories.
Extran® AP 12 1.07563 (formerly EX 0990)	powder, alkaline	2 kg 10 kg 25 kg	0.2–0.4%	12.3	Active cleaning. Especially of starch and protein residues.
Extran® AP 13 1.07565	powder, alkaline, with detergents	2 kg 10 kg 25 kg	0.2–0.4%	12.3	Intense cleaning. Especially of fat residues.
NEW Extran® AP 16 1.40001 (substitute for EX 1009)	liquid, mild alkaline free from NTA	2.5 l 10 l 25 l	0.3–0.5%	11.2	Gentle and NTA-free cleaning in machines with liquid dosing e.g. in analytical laboratories. Cleaning effect equivalent to Extran® AP 11 powder.
NEW Extran® AP 17 1.40006 (substitute for EX 0991)	liquid, alkaline free from NTA	2.5 l 10 l 25 l	0.3–0.5%	12.2	Active and NTA-free cleaning in machines with liquid dosing. Environmentally-friendly, since phosphate-free and NTA-free. Cleaning effect equivalent to Extran® AP 12 powder.
Extran® AP 21 1.07559 (formerly EX 1003)	liquid, acidic, with phosphoric acid	2.5 l 10 l 25 l	0.1–0.3%	2.0	Pre-wash for residues of carbonates, hydroxides, proteins, amines, etc. Rinsing with neutralising effect. Also for gentle main wash cycle. Prevents calcareous deposits.
Extran® AP 22 1.07561	liquid, acidic, with citric acid	2.5 l 10 l 25 l	0.1–0.3%	3.0	Gentle pre-wash and rinsing with neutralising-effect. Prevents calcareous deposits. Environmentally-friendly since phosphate-free.
NEW Extran® AP 33 1.40007	Defoamer, liquid without added formaldehyde	2.5 l	1–3 ml/10 l	–	Addition for foaming residues: proteins, fats, soaps and emulsifiers of any kind.
Extran® AP 41 1.07570 (formerly EX 0992)	powder, enzymatic	2 kg 25 kg	0.3%	11,4	For laboratories with medical and dental untensils. For the removal of mucus, saliva, blood etc. Temperature: 55–65°C.

Safety and environment

Efficient, safe and environment-friendly

Extran® cleans reliably, leaving no residues. This prevents residues from being transferred into the next analysis or test. EMD Millipore provides a practical and easy-to-use application aid to prove the freedom from residues of nonionic surfactants after the cleaning process by means of a photometric test. This helps you in preparing your own individual cleaning validation, saving you time and money.

Extran® is free from scents and dyestuffs and does not contain chlorine or other toxic ingredients. It thus prevents odors, protecting the health of the laboratory staff in the process. Our laboratory cleansers are also free of silicones and oxidants and have no inhibitory effect on enzyme tests (e.g. α-amylase, LDH, GOT or on acid phosphatase).

Biodegradable

The active ingredients in Extran® are biodegradable and Extran® is manufactured under stringently controlled production conditions and fulfils the requirements of environmental protection. In almost all cases, Extran® makes the use of chromosulfuric acid, which is still common on the market, unnecessary. It is thus gentle on the environment and on the health of staff.

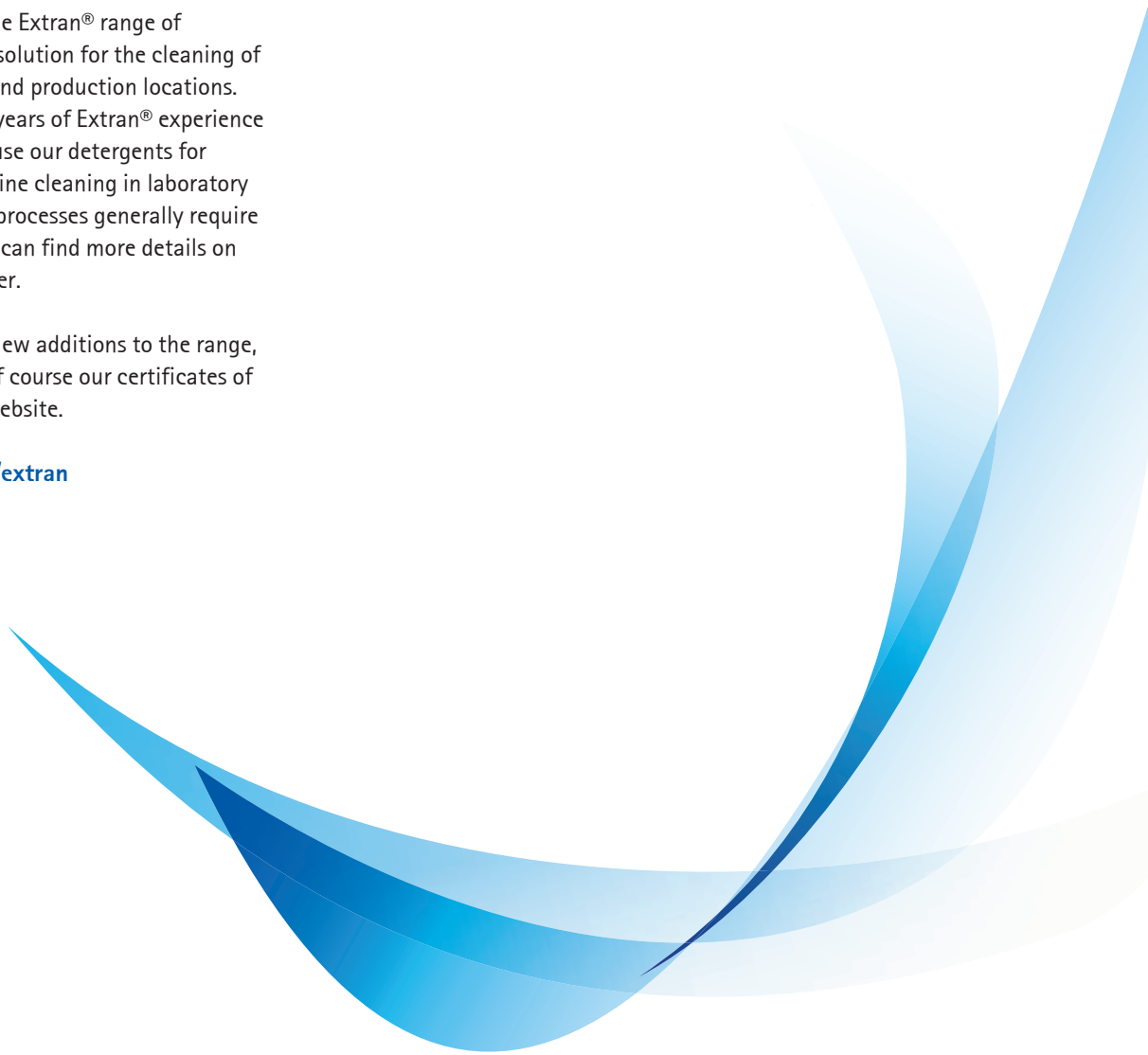
More information about sustainable protection
www.emdmillipore.com/protection

The ideal all-purpose cleaner

Depending on the type of contamination and the material to be cleaned, the Extran® range of products offers the ideal solution for the cleaning of your laboratory utensils and production locations. Put your trust in over 25 years of Extran® experience from EMD Millipore and use our detergents for manual cleaning or machine cleaning in laboratory washing machines. Both processes generally require different detergents. You can find more details on this later on in this chapter.

For further information, new additions to the range, Safety Data Sheets and of course our certificates of analysis, please see our website.

www.emdmillipore.com/extran



Cleaning application examples

	Cleaning applications A–O	Manual washing	Decalcification solution	Extran® MA 01	Extran® MA 02	Extran® MA 05	Sodium hydroxide solution	Machine washing	Extran® AP 11	Extran® AP 12	Extran® AP 13	Extran® AP 16	Extran® AP 17	Extran® AP 21	Extran® AP 22	Extran® AP 33	Extran® AP 41
A	Alkyd resins			•		•				•							
	Aluminum				•												
	Amines		•											•	•		
	Analytical laboratories			•	•	•			•			•					
B	Balsam resin			•		•				•			•				
	Bitumen			•		•											
	Blood			•		•				•							
	Brass				•	•											
	Breweries			•	•	•	•		•	•	•		•				•
	Bronze				•												
C	Calcareous deposits on equipment		•											•	•		
	Carbonates		•											•			
	Cells				•												
	Chemical glassware			•	•	•			•			•					
	Culture media									•			•				
D	Dairies			•	•	•	•		•	•	•		•				
	Distillation residues			•		•					•		•				
E	Enzyme test receptacles			•	•	•			•	•	•	•	•	•	•	•	•
F	Fat residues			•		•					•						
	Felt-tip pen			•	•	•			•	•	•	•	•				
	Foam															•	
	Food industry			•	•	•	•		•	•	•		•				
	Food waste			•	•				•	•	•	•	•				
G	Glass and porcelain equipment			•	•					•			•				
	Grease for joints			•						•	•		•				
H	Heavy oils			•						•			•				
	Hydroxides		•											•	•		
L	Laboratory floors			•			•										
	Lenses for glasses				•												
M	Metal equipment				•				•			•					
	Mucus																•
N	Neutralization		•											•	•		
	Nickel			•	•	•			•	•	•	•	•	•	•	•	•
O	Oil			•						•			•				

Cleaning applications P–Z

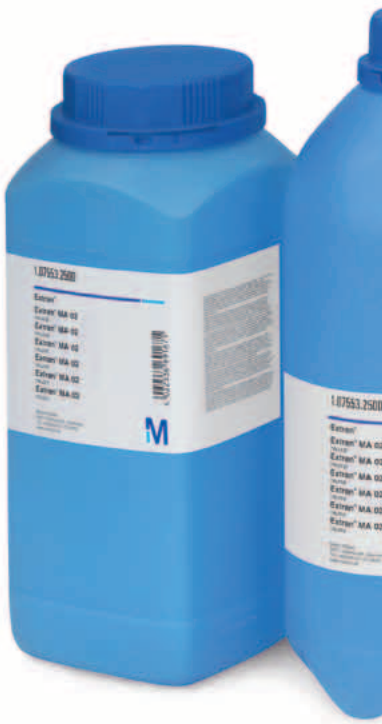
		Manual washing							Machine washing								
		Decalcification solution	Extran® MA 01	Extran® MA 02	Extran® MA 05	Sodium hydroxide solution		Extran® AP 11	Extran® AP 12	Extran® AP 13	Extran® AP 16	Extran® AP 17	Extran® AP 21	Extran® AP 22	Extran® AP 33	Extran® AP 41	
P	Petri dishes	•	•	•	•			•	•	•	•	•	•	•	•	•	
	Phosphate analysis equipment				•												
	Pipettes			•				•			•						
	Plaster residues	•	•	•				•	•								
	Plastic equipment							•			•						
	Precision equipment			•													
	Protein residues		•		•				•			•					
	Proteins		•		•				•			•					
Q	Quartz equipment			•													
R	Rubber			•				•			•						
S	Saliva		•		•											•	
	Silicones (oils, greases, resins)		•						•	•		•					
	Stainless steel	•	•	•	•	•		•	•	•	•	•	•	•	•	•	
T	Thin film plates		•		•			•			•						
	Tiles in laboratory		•			•											
	Tough residues					•			•			•					
U	Ultrasound		•	•	•												
Z	Zinc			•													

Manual washing

The Extran® MA types for manual washing are universally applicable concentrates for the production of water baths which work reliably and residue-free.

General application advice

- Water is used to prepare the cleaning solution. If slight sedimentation of the hardener occurs, more Extran® must be added. De-mineralized water boosts the cleaning effect.
- For cleaning, the items to be cleaned are simply immersed completely in the solution.
- Once cleaning is finished, they are rinsed first with tap water and then with demineralized water.
- The baths can be used for a longer time without a noticeable decrease in the cleaning effect.
- If necessary, the rinsing liquid can be supplemented with fresh Extran®.
- The length of application is less than 2 hours.
- For »difficult cases« such as plaster, blood or heavy oil, the items to be cleaned are simply left in the bath a little longer.
- Heat speeds up the cleaning process.
- Extran® is also ideally suited to ultrasound cleaning.



1.07553.2500
Extran®
Extran® MA 02
Neutral

Extran® MA types for manual washing

Ordering information

Extran® MA 01

Extran® MA 01 liquid, alkaline		Content	Packaging	Ord. No.
Extran® MA 01 alkaline		2.5 l	Plastic bottle	1.07555.2500
		10 l	Plastic container	1.07555.9010
		25 l	Plastic container	1.07555.9025
Ingredients	Ionic and non-ionic surfactants, phosphates, excipient in low quantities			
Application advice	Universal cleaner for the removal of heavy contamination. In wiping tables, tiles, floors. In soaking for the automated cleaning of laboratory equipment. Do not use on alkali-sensitive materials such as aluminium.			
Properties	Liquid | alkaline | chlorine-free | free from odorants / dyestuffs			
Dosing	The ideal dosage depends on the hardness of the water and the level of contamination of the item to be cleaned.			
	Recommended application concentrations			
	For normal contamination: 2%			
	For heavier contamination: 5%			
	For very tough stains up to 20%			
pH value	pH = 11.6 [in a 2% solution]			
	pH = 12.0 [in a 5% solution]			
Accessories	Dosing feeder made from PP, 20–28 ml for 1 l Extran® bottle			9.57571.1020

Extran® MA 02

Extran® MA 02 liquid, neutral		Content	Packaging	Ord. No.
Extran® MA 02 neutral		2.5 l	Plastic bottle	1.07553.2500
		10 l	Plastic container	1.07553.9010
		25 l	Plastic container	1.07553.9025
Ingredients	Ionic and non-ionic surfactants, phosphates, excipient in low quantities			
Application advice	Universal cleaner for the gentle cleaning of appliances made from alkali-sensitive metals such as aluminum, zinc and alloys with similar behavior. Suitable for metal appliances and precision measuring devices made from glass and quartz such as burettes, pipettes, cells, blood gas analyzers and other medical equipment which is sensitive to aggressive detergents and also rarely has problematic contamination.			
Properties	Liquid | neutral | chlorine-free | free from odorants / dyestuffs			
Dosing	The ideal dosing depends on the hardness of the water and the level of contamination of the item to be cleaned.			
	Recommended application concentrations			
	For normal contamination: 2%			
	For heavier contamination: 5%			
pH value	pH = 7.5 [in a 5% solution]			

Extran® MA 05

Extran® MA 05 liquid, alkaline, phosphate-free	Content	Packaging	Ord. No.
Extran® MA 05 liquid, alkaline, phosphate-free concentrate	2.5 l	Plastic bottle	**1.40000.2500**
	10 l	Plastic container	**1.40000.9010**
	25 l	Plastic container	**1.40000.9025**

Ingredients	Anionic and non-ionic surfactants, alkalescent additives, free of NTA (nitrilotri acetic acid)
Application advice	Universal cleaner for the removal of tough stains. Unlimited use also possible with very hard water. Do not use on alkali-sensitive materials such as aluminum. Use is especially recommended everywhere where micro-phosphate tests are carried out.
Properties	Liquid | alkaline | phosphate-free | chlorine-free | free from odorants / dyestuffs | NTA-free
Dosing	The ideal dosage depends on the hardness of the water and the level of contamination of the item to be cleaned.
	Recommended application concentrations
	For normal contamination: 2%
	For heavier contamination: 5%
	For very tough stains up to 20%
pH value	pH = 11.6 [in a 2% solution]
	pH = 12.0 [in a 5% solution]

Automated cleaning

The various types of Extran® AP were created in cooperation with leading appliance manufacturers especially for use in laboratory washing machines and tested in these machines for suitability. As well as a distinctive cleaning power with extensive universal effects, the very low formation of foam is also an important property. The good solubility in water of all components minimizes residues on appliances which have been cleaned.

To neutralize displaces alkali residues and remove remaining traces of alkali, an acid rinser should be used after every main wash cycle.

All neutralizing agents are suitable.

- Extran® AP 21 acidic with phosphoric acid
- Extran® AP 22 acidic with citric acid

www.emdmillipore.com/extran

Extran® AP types for automated cleaning

Ordering information

Extran® AP 11

Extran® AP 11 powder, mild alkaline		Content	Packaging	Ord. No.
Extran® AP 11 mildly alkaline		2 kg	Plastic bottle	**1.07558.2000**
		10 kg	Bucket, plastic	**1.07558.9010**
		25 kg	Fibre carton	**1.07558.9025**
Ingredients	Phosphates, alkali salts			
Application advice	Universal cleaning agent for the gentle cleaning of alkali-sensitive items. Cleaning of items which cannot be tainted with allergenic detergents, such as jewelry, glasses. A corrosion inhibitor is included for the intensive prevention of corrosion of glass and ceramics. Extran® AP 11 mild alkaline does not foam even during heavy agitation of the solution in a washing machine.			
Properties	In powder form | mild alkaline | surfactant-free | chlorine-free | contains a corrosion inhibitor | free from odorants / dyestuffs			
Dosing	The ideal dosage depends on the hardness of the water and the level of contamination of the item to be cleaned.			
	Recommended application concentrations			
	For normal conditions: 0.2-0.4%, i.e. 20-40 g of Extran® AP 11 are used for around 10 l of water			
pH value	pH = 11.3 [in a 0.3% solution when ready for use]			

Extran® AP 12

Extran® AP 12 powder, alkaline		Content	Packaging	Ord. No.
Extran® AP 12 alkaline		2 kg	Plastic bottle	**1.07563.2000**
		10 kg	Bucket, plastic	**1.07563.9010**
		25 kg	Plastic drum	**1.07563.9025**
Ingredients	Phosphates, sodium hydroxide, alkali salts			
Application advice	Active universal cleaning agent for the main wash cycle, which cleans even heavily soiled items and removes dried or burned-on residues. Particularly suitable for the removal of starch and protein residues. Extran® AP 12 alkaline does not foam even during heavy agitation of the solution in a washing machine.			
Properties	In powder form | alkaline | surfactant-free | chlorine-free | free from odorants / dyestuffs			
	Extran® AP 12 is free from organic surfactants and emulsifiers, but contains complexing agents and can therefore be used in both soft and hard water.			
Dosing	The ideal dosage depends on the hardness of the water and the level of contamination of the item to be cleaned.			
	Recommended application concentrations			
	For normal conditions: 0.2-0.4%, i.e. 20-40 g of Extran® AP 12 are used for around 10 l of water			
pH value	pH = 12.3 [in a 0.3% solution when ready for use]			

Extran® AP 13

Extran® AP 13 powder, alkaline with detergents		Content	Packaging	Ord. No.
Extran® AP 13 alkaline with detergents		2 kg	Plastic bottle	**1.07565.2000**
		10 kg	Fibre carton	**1.07565.9010**
		25 kg	Plastic drum	**1.07565.9025**
Ingredients	Non-ionic surfactants, phosphates, sodium hydroxide, alkali salts			
Application advice	Intensive cleaning agent for the main wash cycle. Particularly effective against grease and oil deposits. Other organic and inorganic residues are also removed.			
Properties	In powder form | alkaline | chlorine-free | contains a corrosion inhibitor | free from odorants / dyestuffs			
	Extran® AP 13 contains organic surfactants and emulsifiers and foams little. The product contains complexing agents and can therefore be used even in hard water without further additions.			
Dosing	The ideal dosage depends on the hardness of the water and the level of contamination of the item to be cleaned.			
	Recommended application concentrations			
	For normal conditions: 0.2-0.4%, i.e. 20-40 g of Extran® AP 13 are used for around 10 l of water			
pH value	pH = 12.3 [in a ready-to-use solution]			

Extran® AP 16

Extran® AP 16 liquid, mild alkaline		Content	Packaging	Ord. No.
Extran® AP 16 liquid, mild alkaline concentrate		2.5 l	Plastic bottle	**1.40001.2500**
		10 l	Plastic container	**1.40001.9010**
		25 l	Plastic container	**1.40001.9025**
Ingredients	Complexing agents, alkali salts, free from NTA			
Application advice	Universal cleaning agent for the gentle cleaning of alkali-sensitive items. Cleaning of items which cannot be tainted with allergenic detergents, e.g. jewelry, glasses. Extran® AP 16 mild alkaline does not foam even during heavy agitation in a washing machine.			
Properties	Liquid | mild alkaline | phosphate-free | surfactant-free | chlorine-free | free from odorants / dyestuffs | NTA-free			
	Extran® AP 16 mild alkaline is a liquid main cleaning agent with mild alkaline properties for automatic dosage.			
Dosing	The ideal dosage depends on the hardness of the water and the level of contamination of the item to be cleaned.			
	Recommended application concentrations			
	For normal conditions: 0.3-0.5%, i.e. 30-50 ml of Extran® AP 16 are used for around 10 l of water			
pH value	pH = 11.2 [in a 0.3-0.5% solution]			
Accessories	**Adapter made from PP, for 10 l and 25 l Extran® cans**			**9.67212.0001**

Extran® AP types for automated cleaning

Ordering information

Extran® AP 17

Extran® AP 17 liquid, alkaline		Content	Packaging	Ord. No.
Extran® AP 17 liquid, alkaline concentrate		2.5 l	Plastic bottle	**1.40006.2500**
		10 l	Plastic container	**1.40006.9010**
		25 l	Plastic container	**1.40006.9025**
Ingredients	Complexing agent, sodium hydroxide solution, free from NTA			
Application advice	Active universal cleaning agent for the main wash cycle which cleans and removes even heavily soiled items. Particularly suitable for the removal of starch and protein residues. Extran® AP 17 alkaline does not foam even during heavy agitation in a washing machine.			
Properties	Liquid | alkaline | phosphate-free | surfactant-free | chlorine-free | free from odorants / dyestuffs | NTA-free			
	Extran® AP 17 is free from organic surfactants and emulsifiers, but contains complexing agents and can therefore be used in both soft and hard water.			
Dosing	The ideal dosage depends on the hardness of the water and the level of contamination of the item to be cleaned.			
	Recommended application concentrations			
	For normal conditions: 0.3-0.5%, i.e. 30-50 ml of Extran® AP 17 are used in around 10 l of water			
pH value	pH = 12.2 [in a 0.3 solution]			
Accessories	Adapter made from PP, for 10 l and 25 l Extran® cans			**9.67212.0001**

Extran® AP 21

Extran® AP 21 liquid, acidic with phosphoric acid		Content	Packaging	Ord. No.
Extran® AP 21 acidic with phosphoric acid		2.5 l	Plastic bottle	**1.07559.2500**
		10 l	Plastic container	**1.07559.9010**
		25 l	Plastic container	**1.07559.9025**
Ingredients	Phosphoric acid			
Application advice	**The acid special cleaner can be used both as a pre-wash agent and a rinsing agent with a neutralizing effect.**			
	Pre-wash agent: When used as a pre-wash agent, it primarily dissolves carbonates and hydroxides from the residues. Protein substances and organic bases, such as amines, are often removed better in an acidic pre-wash as in an alkaline main wash cycle.			
	Rinsing agent: As a rinsing agent, i.e. after the alkaline main wash cycle, it is especially suitable for removing remaining traces of alkali on the cleaned material or, in the case of solution carry-over, for neutralization. This acidic cleaning agent is also well suited to the removal of calcareous deposits in the washing machine.			
Properties	Liquid | acidic | surfactant-free | chlorine-free | free from odorants / dyestuffs			
	Extran® AP 21 is an acidic pre-wash and neutralization agent with a phosphoric acid base.			
Dosing	Added automatically using a dosing device or manually.			
	Recommended application concentrations			
	Around 0.1-0.3%, i.e. 10-30 ml of Extran® AP 21 are added to around 10 l of water			
pH value	pH = 2.0 [in a ready-to-use solution]			
Accessories	Adapter made from PP, for 10 l and 25 l Extran® cans			**9.67212.0001**

Extran® AP 22

Extran® AP 22 liquid, acidic with citric acid	Content	Packaging	Ord. No.
Extran® AP 22 acidic with citric acid	2.5 l	Plastic bottle	**1.07561.2500**
	10 l	Plastic container	**1.07561.9010**
	25 l	Plastic container	**1.07561.9025**

Ingredients	Citric acid, non-ionic surfactants, low levels of excipient, phosphate-free	
Application advice	**The acidic special cleaner can be used both as a pre-wash agent and a rinsing agent with a neutralizing effect.**	
	Pre-wash agent: When used as a pre-wash agent, it primarily dissolves hydroxides from the residues. Protein substances and organic bases, such as amines, are often removed better in an acidic pre-wash as in an alkaline main wash cycle.	
	Rinsing agent: As a rinsing agent, i.e. after the alkaline main wash cycle, it is especially suitable for removing remaining traces of alkali on the cleaned material or, in the case of solution carry-over, for neutralization. This acidic cleaning agent is also well suited to the removal of calcareous deposits in the washing machine. The product is recommended for cases in which gentle conditions must be maintained for particular reasons. Particularly suitable for the gentle removal of calcareous deposits, e.g. on taps or sensitive metal and glass surfaces.	
Properties	Extran® AP 22 is an acidic pre-wash and neutralization agent with a citric acid base.	
Dosing	Added automatically using a dosing device or manually.	
	Recommended application concentrations	
	Around 0.1-0.3%, i.e. 10-30 ml Extran® AP 22 are used for around 10 l of water	
pH value	pH = 3.0 [in a ready-to-use solution]	
Accessories	Adapter made from PP, for 10 l and 25 l Extran® cans	**9.67212.0001**

Extran® AP 33

Extran® AP 33 Defoamer	Content	Packaging	Ord. No.
Extran® AP 33 liquid, anti-foaming agent	2.5 l	Plastic bottle	**1.40007.2500**

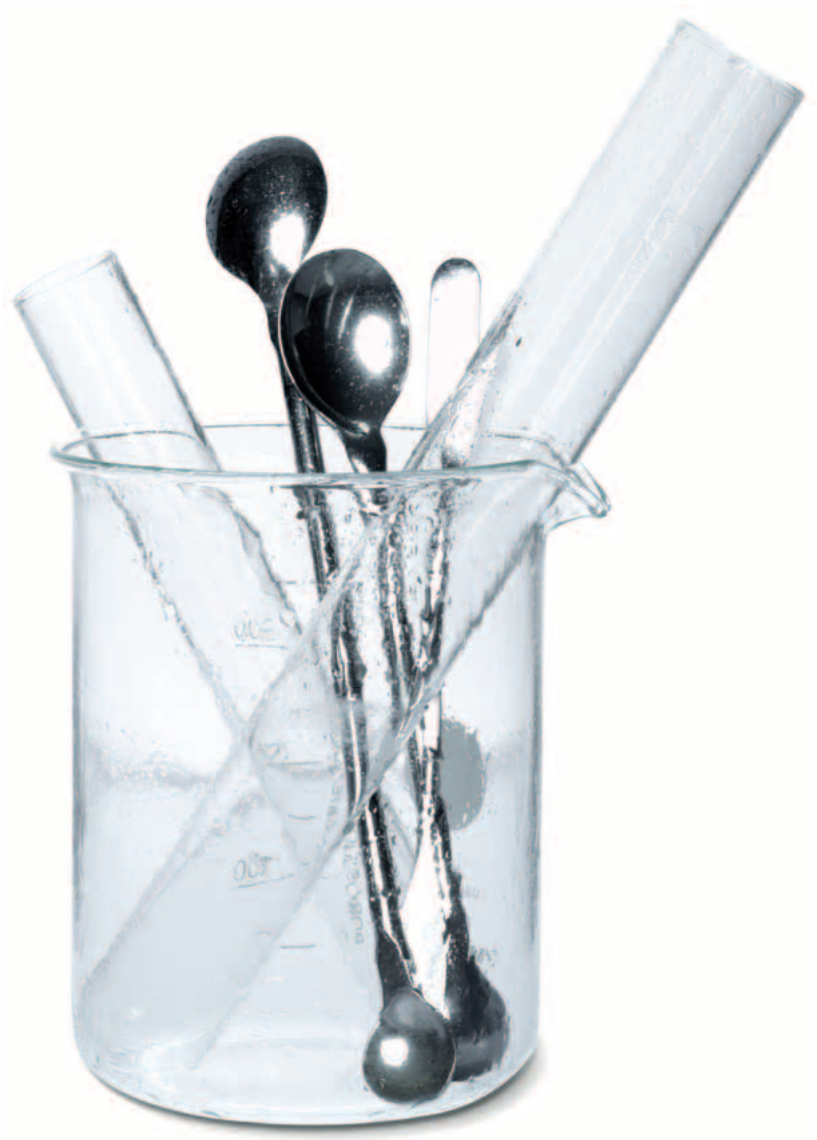
Ingredients	Inorganic polymers, low levels of excipient, contains silicon, produced without added formaldehyde
Application advice	If the residues to be removed foam significantly themselves, the development of foam is prevented by adding this special defoamer. Strong foamers include all kinds of emulsifiers, e.g. soaps, which sometimes only develop during the wash cycle due to the saponification of fats, and numerous protein stains.
Dosing	0.5-3 ml per 10 l wash cycle

Extran® AP types for automated cleaning

Ordering information

Extran® AP 41

Extran® AP 41 powder, enzymatic		Content	Packaging	Ord. No.
Extran® AP 41 enzymatic		2 kg	Plastic bottle	**1.07570.2000**
		25 kg	Plastic drum	**1.07570.9025**
Ingredients	Enzymes, phosphates, alkali salts			
Application advice	Alkaline cleaning agent for use in washing machines. Especially for the removal of dried tissue and saliva residues, of mucus, protein and blood, in catheters, breathing tubes, breathing bags etc. Ideal conditions for cleaning are between 55 and 65°C, since the enzymes do not work above 70°C.			
	We recommend Extran® AP 22 acidic with citric acid as an acidic rinsing agent.			
Dosing	**Recommended application concentrations**			
	0.3%, i.e. 30 g of Extran® AP 41 are used for each 10 l wash cycle			
pH value	pH = 11.4 [in a ready-to-use solution]			



General cleaning applications

Ordering information

Chromosulfuric acid		Content	Packaging	Ord. No.
Chromosulfuric acid for cleaning glass vessels		1 l	Glass bottle	**1.02499.1000**
		2.5 l	Glass bottle	**1.02499.2500**
General information	Chromosulfuric acid is an excellent cleaning agent for tough cases, for example when working with carcinogenic substances. Carcinogenic residues can be oxidative destroyed by treatment with chromosulfuric acid. The effect is based on the chromium(VI) oxide CrO_3, a very strong oxidation agent. During the oxidation process, the red-brown chromium(VI) oxide is reduced to the green trivalent state of chromium. The depletion level can thus be assessed from the change in color without further testing: fresh chromosulfuric acid is red-brown, used is green in color.			
Safety advice	Extreme care must be taken when working with chromosulfuric acid due to its corrosive and highly oxidizing properties and the possibility of the formation of poisonous chromium(VI) vapor. Due to the large amount of heat generated when mixed with water, chromosulfuric acid must never be diluted by adding water (strongly corrosive splashes!). If dilution is necessary, this can only be done by adding the acid to water while stirring. The equally very poisonous chromium(VI) oxide chloride (chromylchloride) is formed when chlorides are present in the residues to be removed. For all these reasons, cleaning procedures using chromosulfuric acid should only be undertaken in a well-ventilated area. Furthermore, protective clothing, impermeable gloves and protective goggles are to be worn. Instructions for safe use are printed on the label of every pack.			
Removal of residues	Chromium solutions must be treated as special waste and their disposal left to a company responsible for this. Neutralize any spilled acid with sodium hydrogen carbonate or lime sand. Never mop up with wadding, pulp, textiles or sawdust.			

Sodium hydroxide solution		Content	Packaging	Ord. No.
Sodium hydroxide solution about 21% extra pure		25 l	Plastic container	**1.05593.9025**
Ingredients	Sodium hydroxide			
Application advice	Basic cleaning agent for cleaning applications in which residues from surfactants or complexation agents are to be avoided. Through the use of these prepared solutions, the time-consuming and dangerous breakdown of solid sodium hydroxide can be avoided.			
Properties	Liquid | strongly alkaline | chlorine-free			

We provide information and advice to our customers to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.