



Commercial dishwashing & cleaning agents

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[Commercial Dishwashing Association]
Feithstraße 86, 58095 Hagen, Germany,
phone: +49 (0)2331/ 377 544 – 0,
fax: +49 (0)2331/ 377 544 – 4, e-mail: info@vgg-online.de,
www.vgg-online.de**



INTRODUCTION

In this technical information sheet, the term 'agents' refers to detergents and rinse aids as well as to any additives used to assist in the automated commercial warewashing process.

Good warewashing results can only be achieved by using a combination of agents, a detergent or a combination of detergents being used initially and a rinse aid in a subsequent wash cycle.

DIN standards DIN 10510 to 10512 and DIN 10522 should be complied with in all cases!

<p>What factors influence warewashing results?</p>	<p>Automated commercial warewashing involves the interaction of the following factors:</p> <ol style="list-style-type: none"> 1. wash ware 2. dry-on time 3. type and quantity of food residues involved 4. pre-cleaning 5. temperature 6. contact time 7. mechanics 8. water quality and quantity 9. cleaning agents 10. rinsing 11. drying.
<p>What is the significance of the factors 'mechanics', 'time' and 'temperature' in automated warewashing?</p>	<p>In commercial warewashers, the detergent solution is sucked in by pumps and sprayed onto the wash ware through nozzles. High levels of performance are demanded from every commercial warewasher. This means that the contact time, temperature and mechanics have to be optimally coordinated.</p>
<p>How does the detergent work?</p>	<p><u>Detergent</u></p> <p>The balanced composition of the detergent enables it to remove food residues from the wash ware.</p> <p>In addition, it has the capacity to finely distribute food particles in the detergent solution and to hold them in dispersion (soil load capacity), thereby as far as possible preventing any re-soiling.</p> <p>The polyphosphates or phosphate substitutes can, in water up to a certain hardness, eliminate the deposition of calcium and magnesium carbonate (scale).</p> <p>Above this level of hardness, water treatment equipment is needed (see VGG technical information sheet Commercial dishwashing & water).</p>



	<p>Alkaline components cause the swelling and breakdown of food residues such as starches, proteins and fats and have a corrosion-inhibiting effect.</p> <p>Enzymes are further components which are used for the removal of food residues.</p> <p>Special disinfecting components in the detergent bring about a further reduction in germs and the oxidation of food colouring residues such as those found e.g. in coffee, tea or lipstick.</p> <p>Attention:</p> <p>Appropriate dosing of detergents counters corrosion processes. Underdosing of detergent promotes corrosion and the formation of deposits of e.g. starch, lime, protein (see VGG technical information sheet Commercial dishwashing & wash ware made of metal).</p>
<p>In what form are detergents delivered?</p>	<p>Detergents come as powder mixtures, as solid blocks and in paste and liquid form.</p>
<p>In what concentration should the detergent be dosed?</p>	<p>The dosage recommendations of the manufacturer of the agents should be followed.</p> <p>Depending on the given conditions, there are ways of making detergent consumption as economical as possible. For example, it may be more cost-effective to reduce the quantity of detergent by means of appropriate technical measures, such as e.g. installing water treatment equipment, or by means of organisational measures (preventing dried-on food residues).</p>
<p>What factors lead to increased detergent consumption?</p>	<p>Increased detergent consumption is caused by:</p> <ul style="list-style-type: none"> • heavily soiled wash ware • inadequate pre-cleaning • long dry-on times • pre-heating of wash ware to over 60°C • short contact times • a too low temperature of the detergent solution • wash ware-related cleaning problems • high water-hardness levels.



<p>How does the rinse aid work?</p>	<p><u>Rinse aid</u></p> <p>The function of the rinse aid is to reduce the surface tension of the water in the last wash cycle and, by lowering the interfacial tension, to achieve optimum wetting of the cleaned wash ware in the fresh water rinse.</p> <p>This, together with the heat stored up in the wash ware itself (from the hot detergent solution or a separate feed of hot drying air) means that rapid drying of the wash ware is achieved. This results in spotless, gleaming and dry surfaces on dishes and cutlery.</p>
<p>How is the correct dosage of rinse aid determined?</p>	<p>The exact dosage is determined visually by means of trial washes. Here, a minimal dosage is used to start with, and the application is gradually increased.</p> <ul style="list-style-type: none"> • Underdosing: water drops and water streaks. • Overdosing: smears and cloud-shaped and bubble-shaped markings. <p>Fully rinsed wash ware should be free of spots and smears and have a uniform sheen.</p> <p>The dosage recommendations given by the manufacturer of the agent should be followed.</p>
<p>Are any other agents used in commercial warewashing?</p>	<p><u>Other agents</u></p> <p>Depending on the wash ware to be cleaned or on the cleaning task, a variety of products are available.</p> <p>There are special agents for the automated cleaning of glasses and pans. Special products like stripping and soaking agents and descaler are also used.</p> <p>For special requirements, detergent manufacturers may recommend appropriate individual components in a modular system.</p>
<p>Are agent residues on wash ware physiologically safe?</p>	<p>Since the final wash cycle, the fresh water rinse, ensures that neither detergent nor food residues from the detergent solution remain on the wash ware, this question does not apply as far as detergents are concerned.</p> <p>However, as a result of the automated drying process, traces of rinse aid may remain on the wash ware, as in the case of washing by hand. The quantity is extremely small and physiologically safe.</p>
<p>Are agents biodegradable?</p>	<p>Detergents and rinse aids respectively are biodegradable in accordance with the Cleaning Agents</p>



	<p>and Detergents Act (Detergents Ordinance 648/2004) currently in force (see VGG technical information sheet Commercial dishwashing & the environment).</p> <p>Note: When switching products, dosing systems and storage containers should be rinsed out with water. The information given on the safety data sheets should be observed.</p>
<p>Specialist advice provided by member companies of the VGG</p>	<p>This technical information sheet, which has been drawn up by experienced practitioners, is intended to draw the attention of the reader to the fact that commercial automated warewashing cannot be carried out successfully if it is approached superficially and without the participation of all those involved in the warewashing process.</p> <p>Only an understanding of the technical processes and of the interdependencies that these entail, i.e. teamwork on the part of all those involved, in particular the operator of the warewasher and his/her staff, and regular maintenance of the warewasher, dosing equipment and water treatment system by the manufacturer will produce the warewashing results expected by the user.</p> <p>Consistent cooperation between warewasher, agent and dosing equipment manufacturers as well as manufacturers of water treatment equipment and wash ware will ensure constant and optimum adaptation to practical requirements, to the benefit of the customers they share and of the environment.</p> <p>Enquiries regarding this technical information sheet "<i>Commercial dishwashing & cleaning agents</i>" should be addressed to</p> <p>Arbeitsgemeinschaft Gewerbliches Geschirrspülen, Feithstraße 86, 58095 Hagen, Germany Phone: +49 (0)2331/ 377 544 – 0, Fax: +49 (0)2331/ 377 544 – 4, E-mail: info@vgg-online.de.</p>