

Chemical Storage and Handling

Create Safety for yourself, your animals and the environment



Operator Manual

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1 Preface

1.1 Manual contents

This manual contains advices that help to safely store and handle chemical products in general. This manual cannot be considered as a product specific manual for any product. In case of any apparent discrepancy between this manual and a product specific manual, the latter will prevail.



Always refer to your local laws and rules. Those prevail if there should be any discrepancy with what is written in this manual.

Please always contact Lely or the supplier of a specific product in case of any questions or doubts.

The information in this manual is initially meant for operators, farmers and everyone that has something to do with chemicals directly or indirectly.

Study and understand this information thoroughly before you store and handle chemical products. Failure to do so could result in death, (severe) injury, environmental pollution and/or material damage.

Although the content in this manual has been compiled with the greatest possible care, Lely cannot accept liability for any damage, directly or indirectly, that might arise from errors or omissions in this manual.

If you should have any comments, please send your feedback to us by e-mail (manuals@Lely.com). Please mention the document number and the page number.

1.2 Personnel requirements



Risk of accident from insufficiently qualified personnel.
Unqualified personnel working with chemicals can be the cause of serious injuries and considerable damage to material.

- All activities must only be carried out by qualified personnel.
 - Keep unqualified personnel away from the danger zones.
 - Only persons who can be expected to carry out their job reliably are authorized as personnel. Persons whose reactions are impaired, e.g. by drugs, alcohol or medications, are not authorized to work with chemicals.
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2 Introduction

2.1 Definition of Chemicals in this manual

According to the online Cambridge Dictionary, a chemical substance (in short *chemical*) is “any basic substance that is used in or produced by a reaction involving changes to atoms or molecules”. Oxford Reference states that “Elements, compounds and alloys are chemical substances”.

Following these definitions, substances such as water, gold or table salt belong to the big family of chemicals.

In this manual the word *chemical* is used for synthetic chemical substances, with special attention to those substances that are used for operating, cleaning or otherwise maintaining Lely machines and taking care of the animals that are treated using Lely machines.

Hazard and risk

Although the terms *hazard* and *risk* are often used interchangeably, there is quite a difference between these two.

A **hazard** (in this manual) is a substance with the potential cause to harm in a certain way, such as injuries, damage or death.

A **risk** is the chance that somebody (person, animal or materials) could be harmed by a hazard.

Toxicity

The **toxicity** of a substance is a property that indicates how toxic it is, hence to what extent it can cause unwanted effects to (in this case) a human. The dose of the particular substance is an important parameter in the toxicity.

Knowing these descriptions, chemicals that are very toxic can be used in a safe way if the handling and storage instructions are followed properly.

2.2 Why this manual?

This manual is meant to explain how people should handle and store chemicals in such a way that risks of health hazards, physical hazards and environmental pollution are minimized. We as Lely want to raise awareness and provide more information regarding chemical risks. In order to avoid dangerous situations, we created this manual, so that everybody who works with chemicals has the opportunity to do that safely.

In this manual we concentrate on chemicals that are used with Lely machines. However, some of the recommendations apply to all chemicals. You will find these recommendations in this chapter: (see General information about the hazards of chemicals on page 3-1).

If you should have any questions or remarks after reading this manual, do not hesitate to write us an e-mail at manuals@lely.com.

2.3 How to use this Manual?

It is important to read this manual before using and/or storing chemicals, in order to mitigate dangerous situations. Furthermore, this manual is to be used as a reference book, especially if you are going to use new chemicals or if the composition of the chemicals you use has been changed.



In this manual you will find, among others:

- general information about the hazards that chemicals can form to both human and animal health, the environment and machines and other materials;
- hazard communication (SDS, labels) you may encounter when working with chemicals;
- what laws and regulations tell us about (the hazards of) chemicals;
- guidelines to handling and storing Lely Consumables and other chemicals;
- an overview of Lely machines that make use of chemicals;
- the division of responsibilities between Lely and you as our customer.

3 General information about the hazards of chemicals

3.1 Hazards of chemicals to human health

The hazards to human health that are caused by chemicals can be divided in two parts:

1. Long-term health hazards
2. Acute health hazards

The acute health hazards are discussed in this topic: (see Labelling of chemicals and corresponding hazards on page 4-1). The long-term health hazards are discussed below.

Long-term health hazards

By *long-term health hazards* is meant: the risk of getting unwanted effects of a chemical that do not appear immediately or during a short period after exposure to the particular chemical. Sometimes the effects are of a chronic nature. For instance: exposure to certain kinds of chemicals may cause cancer or problems with the central nervous system; sometimes it takes years before these pathologies appear.

The long-term health hazards of a chemical are mentioned in the safety data sheet of that chemical.

This topic (see Labelling of chemicals and corresponding hazards on page 4-1) shows the symbols that are used to express physical and other hazards.

3.2 Personal Protective Equipment






Handling, using and storing hazardous chemicals requires adequate Personal Protective Equipment (PPE) in order to minimize the risks of getting injured, or even worse.

Which PPE is necessary depends on what chemicals are used and in what measure.

Below you find an overview of signs that urge you to wear PPE when being near certain chemicals. It is very important that farm owners and other responsible persons make sure that these signs, if applicable, are visible in the presence of hazardous chemicals. In the Safety Data Sheet (SDS) of the particular chemical product must be stated which PPE should be worn when being near that product.

Attention

This is not a complete list, but it shows the signs that might be useful when working with Lely chemicals.

Sign	Meaning
	Wear eye protection (safety goggles)
	Wear face shield
	Wear foot protection (safety shoes)
	Wear hand protection (chemical resistant gloves)
	Wear protective clothing

3.3 Hazards of chemicals to animal health

Since animals do not have any Personal Protection Equipment and are not aware of the hazards of chemicals, the persons that work with these animals must be extra alert when working with chemicals near the animals. For instance: when you are going to use udder or hoof care products, make sure you do NOT mix it up with a cleaning detergent or any other product that is harmful to animals.

Another point of attention is that you make sure that animals can NOT reach the room where chemicals are stored or any room where chemicals are present. That counts for farm animals such as cows and pigs, but for pets such as dogs and cats as well.

In case an accident occurs, despite all measures (see What to do with accidents and other incidents? on page 5-1).

3.4 Physical hazards of chemicals

Physical Hazards are hazards that have to do with materials. Think of corrosive, flammable and oxidizing chemicals that may harm (parts of) machines, floors, walls or tools, for instance.

The physical hazards of a chemical are mentioned in the safety data sheet of that chemical.

This topic (see Labelling of chemicals and corresponding hazards on page 4-1) shows the symbols that are used to express physical and other hazards.

3.5 Environmental hazards of chemicals

Certain chemicals can be harmful to, for instance, aquatic wildlife. That is, if the particular chemical ends up in the water the wildlife lives in. Such chemicals can be identified by a special label (see Labelling of chemicals and corresponding hazards on page 4-1).

There are a lot of chemicals that can cause trouble to the environment if they catch fire and/or if they react with other chemicals. Aquatic wildlife is just one example of the environment that can be affected; soil pollution is another hazard that occurs when working with chemicals.

That is why it is very important to store chemicals according to local laws and regulations and to put the advices in this manual in practice.



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4 Labelling of chemicals and corresponding hazards




Because of the various hazards that can occur when storing, handling and using chemical products, there are several labels that tell you what the hazards of a product are.





In 1992 the United Nations initiated the Globally Harmonized System of Classification and Labelling of Chemicals (**GHS** in short). One of the goals of this system is to create a worldwide standardization in using symbols that express a certain kind of danger when handling, storing and using hazardous chemicals.

Most of the countries have been implementing GHS nowadays.

You will find more on this matter in the GHS topic in this manual: (see GHS on page 6-1).

These GHS symbols are used on Lely chemicals:

Symbol	Name	Danger
	Irritant	An immediate skin, eye or respiratory tract irritant, or narcotic.
	Corrosives	Chemicals causing skin corrosion/burns or eye damage on contact, or that are corrosive to metals.
	Acute Toxicity	Substances, such as poisons and highly concentrated acids, which have an immediate and severe toxic effect.

	<p>Health Hazard</p>	<p>A cancer-causing chemical (carcinogen) or substance with respiratory, reproductive or organ toxicity that causes damage over time (a chronic, or long-term, health hazard).</p>
	<p>Flammables / Combustibles</p>	<p>Flammables: liquids with a flash point at or below 60 °C (140 °F). Combustibles: liquids with a flash point above 60 °C (140 °F), but below 93°C (200 °F).</p>
	<p>Oxidizers</p>	<p>Identifies oxidizers. Oxidizers are chemicals that facilitate burning or make fires burn hotter and longer.</p>
	<p>Environment</p>	<p>Chemicals toxic to aquatic wildlife.</p>

In order to mitigate injuries, everybody who runs a risk to get in contact with chemicals that have one or more of the labels above on it, should use the proper Personal Protective Equipment (PPE). More information on PPE can be found in this topic on PPE: (see Personal Protective Equipment on page 3-1).

5 What to do with accidents and other incidents?

Despite all rules, laws, regulations and advices, an accident or other incident with one or more chemicals involved, may occur. Because of the wide variety of chemicals and even more possible combinations, there is not one approach that applies to all accidents, except for: read the Safety Document Sheet (SDS) of the particular chemical(s). That is one of the main reasons why you should always keep the SDS with the chemical.

In the SDS you find the components of the chemical (important when talking to a doctor or other medical person) and the actions that must be taken if undesired effects of the chemical should occur. Sometimes you can perform the first response yourself, in other cases you must call a doctor, a veterinarian and/or the (local) authorities, such as an environmental agency.

When the first response is done and the acute danger is gone, always report the incident to your Lely Center.



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6 Laws and regulations

6.1 Transport regulations

Although this manual is not about transporting chemicals professionally, there are transport regulations that form a part of the basis for how chemicals are being stored. One of these regulations is the ADR.

ADR

ADR stands for *Agreement concerning the International Carriage of Dangerous Goods by Road*. This transport regulation is for the European Union and Morocco.

It might be necessary for a farmer to transport chemicals on his own site. For this purpose we have some strong recommendations that are derived from the ADR. The first recommendation is: only transport chemicals yourself if it is not possible to have a professional transporter do this for you, and only under these conditions:

- Always use the right PPE (see Personal Protective Equipment on page 3-1).
- Make sure to have a spill management kit. This must contain everything you need if chemicals are spilled.
- The chemicals may only be transported when they are accompanied by the right Safety Data Sheets (SDS).
- Make sure that all packages are fixated well.
- There is a maximum weight for chemicals to be transported. This maximum depends on the kind of chemicals. See ADR 2023 - Agreement concerning the International Carriage of Dangerous Goods by Road | UNECE.
- Only use a vehicle with a separate driver cabin, i.e. apart from the chemicals.
- Only transport the minimum amount that is needed for the working of the machine(s).

6.2 GHS

Up to the 90's of the previous century, there were no international agreements on handling, transporting and storing chemicals, nor on the health, physical and environmental hazards that could occur during these actions. A lack of consistency in using warning signs was a logic consequence.

In 1992 the United Nations initiated the Globally Harmonized System of Classification and Labelling of Chemicals (**GHS** in short). This system was meant to create a worldwide standardization in what information is shown on chemicals and in the corresponding safety data sheets.

Furthermore, implementing GHS should lead to more consistency in using symbols that express a certain kind of danger when handling, storing and using hazardous chemicals.

The first edition of GHS was published in 2003. Since then, GHS is updated, revised and improved every two years.

More information about GHS is to be found on this website of the United Nations: About the GHS | UNECE. One of the things you can find there is the development of GHS matters per country.

6.3 CLP

The Classification, Labelling and Packaging Regulation (**CLP**) is based on the Globally Harmonized System of Classification and Labelling of Chemicals (see GHS on page 6-1). Since the 1st of June 2015, CLP is the only legislation in force in the EU for classification and labelling of substances and mixtures.

According to the website of the European Chemicals Agency (ECHA, part of the European Union), CLP is “legally binding across the Member States and directly applicable to all industrial sectors. It requires manufacturers, importers or downstream users of substances or mixtures to classify, label and package their hazardous chemicals appropriately before placing them on the market.”

With CLP can be determined whether a substance or mixture has properties that lead to a classification that tells if the substance/mixture is hazardous.

“When relevant information (e.g. toxicological data) on a substance or mixture meets the classification criteria in CLP, the hazards of a substance or mixture are identified by assigning a certain hazard class and category. The hazard classes in CLP cover physical, health, environmental and additional hazards.”

After the classification of the substance or mixture, the hazards must be communicated to all actors in the supply chain. This is where labelling chemicals (see Labelling of chemicals and corresponding hazards on page 4-1) and safety data sheets come in.

For more information about CLP, check the ECHA website: Understanding CLP - ECHA (europa.eu).

Attention

Although the rules of CLP only apply to the EU, these rules can be taken as an advice for other countries if there are no specific rules on this matter in these countries. In the United States of America for instance, there are regulations incorporated in the HCS (Hazard Communication Standard): <https://www.osha.gov/hazcom>.

7 Guidelines to handling chemicals

7.1 Lely Golden Rules

Lely compiled a set of rules regarding the handling and storage of chemicals, called **Lely Golden Rules**. It is important to read, understand and apply these Golden Rules, not only when you are working with chemicals, but also when you have the responsibility for creating and maintaining storage locations for chemicals, for instance.

Important

Not following the Lely Golden Rules may have severe consequences! In the first place for your own safety, the safety of your co-workers and your animals. And because of the fact that Lely wants to create safe working places for its engineers, we might have to decide to postpone possible repair- or maintenance activities, until the situation is safe.

The Lely Golden Rules are divided in four categories: General Safety Requirements, Room Requirements, Chemical Safety Information and Emergency Facilities.

General Safety Requirements

- Safety document sheets of every chemical that is present have to be available and nearby.
- PPE has to be available and has to be used correctly when someone can be exposed to chemicals.
- Store chemicals only in the designated location:
 - Do NOT leave chemicals outside.
 - Protect the chemicals against direct sunlight.
 - No storage in escape or transport routes.
 - See *Room Requirements* below.
- Do NOT store chemicals that can react with each other on the same drip tray. For instance, in case of Lely Consumables: no red and blue cans together.
- Keep chemicals in the original packaging.
- Do NOT mix chemicals with other chemicals.
- If chemicals must be relocated: only do so with closed packaging.
- Inform co-workers about the presence of chemicals and how to handle them.
- Always check the local laws and regulations for rules that may apply to your situation.

Room Requirements

- Store chemicals in a cool, frost-free, dry and well-ventilated location.
- Always close the chemicals location and lock it, remove the key from the door and keep the key in a separate safe location.
- Make sure that pets, visitors, children and other unauthorized persons do NOT have access to the chemicals.

Attention

Use a sticker like this:



- Use a drip tray for each range of chemicals (one for acids and one for alkalis). The drip trays should preferably be red (acids) and blue (alkalis). The collection capacity must be 110% of the total amount of chemicals that is placed on it.
- Keep the storage location(s) clean and tidy.

Chemical Safety Information

- Prevent incorrect use of the chemicals:
 - Always read the product label.
 - Check the combination of color code, product name and packaging (in case of Lely consumables).

Emergency facilities

- Escape route indication.
- Eye wash station.
- Fire extinguishing facilities.
- Keep first aid materials (first aid kit and eye wash station) nearby.
- Always think of your own safety first: safety goggles, gloves and protective working clothes.

Attention

Do NOT be mistaken by the way the chemicals are brought to you! The picture below shows two kinds of chemicals (acids and alkalis) that are packed on one pallet. Unpack the pallets immediately, store the chemicals according to the Lely Golden Rules and keep the local laws and regulations in mind!



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Acids (red) and alkalis (blue) have been delivered on the same pallet. Do NOT put the pallet in your storage room the way you received it.



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8 Lely Astronaut

8.1 Lely Astronaut — Short machine description

The Lely Astronaut (A5 is the most recent type, but the advices in this manual also count for former types) is a milking robot. It is an automated milking system that milks, feeds, and monitors the health of cows. It examines the quantity and quality of the milk received from the cows as well, and, if necessary, it separates milk that is contaminated or is not according to the correct standard.

The milking system has four primary parts:

- Milking robot (one or more).
- Milk storage tank.
- Control system.
- Compressor.

A milking robot has two primary parts:

- A central unit that supplies power, water, cleaning solutions, and regulates pressurized air and applies a vacuum.
- One or two robot units with which the cows are milked.

The machine uses chemicals (see What chemicals are used in the Lely Astronaut? on page 8-1) for cleaning and disinfection purposes.

8.2 Lely Astronaut — General safety instructions

- Read the safety instructions on the cans and in the Safety Data Sheets of the chemicals. The safety data sheets of the Lely Consumables are available at Technical documents - Lely.
- The stock of each chemical must be stored according to local rules and regulations. General guidelines can be found in this manual.
- If you are using Lely Consumables: the safety data sheets should be provided by the Lely Center.

8.3 What chemicals are used in the Lely Astronaut?

The Lely Astronaut uses chemicals for cleaning and disinfection purposes. In the table below, all possible chemicals that can be used in / for the Astronaut are shown. You will NOT find the product name of the specific Lely Consumables, because of legal reasons. Instead, you will see a brief description, the pH value and what hazardous components the chemical contains.

Lely Astronaut

Description	pH value	Color	Hazardous component 1	Hazardous component 2	Hazardous component 3	Hazardous component 4
Process Cleaner, Clean In Place (CIP) process	14	Blue	Sodium hydroxide			
Process Cleaner, CIP process	1	Red	Phosphoric acid	Citric acid		
Milking machine hygiene — milking cluster disinfection — CIP	1	Light Green	Hydrogen peroxide	Acetic acid	Peracetic acid	
Animal housing care — semi-automatic process	1	Light Green	Hydrogen peroxide	Acetic acid	Peracetic acid	
Milking machine hygiene — milking cluster disinfection — CIP	1	Light Green	Hydrogen peroxide	Acetic acid	Peracetic acid	
Surface disinfectant — spray and rinse manual process — process cleaner — CIP process disinfection product — semi-automatic process	1	Light Green	Hydrogen peroxide	Acetic acid	Peracetic acid	
Liquid acid disinfection of milking robot brushes	2.8	Light Green	Hydrogen peroxide	Acetic acid	Peracetic acid	Sodium C14–17 sec alkyl sulfonate

Descrip- tion	pH value	Color	Hazardous component 1	Hazardous component 2	Hazardous component 3	Hazardous component 4
Udder hygiene — spraying — manually/ automated			Polyvinyl-pyrrolidone iodine			
Udder hygiene — spraying — manually/ automated	5		White mineral oil, petroleum	Polyvinyl-pyrrolidone iodine		
Udder hygiene — spraying — manually/ automated	5.5		Polyvinyl-pyrrolidone iodine			
Animal housing care — semi-automatic process / animal care — manual process	2.5		Polyvinyl-pyrrolidone iodine			
Liquid udder hygiene after milking — teat disinfection	5		Alcohols C12–14, ethoxylated	Iodine		
Liquid acid udder hygiene after milking — teat disinfection — application by spraying	2.3		Lactic acid	Alcohols C9–11, ethoxylated		
Liquid acid disinfection of teats of milk producing animals by automated	2.8		Lactic acid	Sodium etasulfate		

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Description	pH value	Color	Hazardous component 1	Hazardous component 2	Hazardous component 3	Hazardous component 4
spraying after milking						
Cleaner vacuum pump	7.6		None			
Analytical reagent	6.5 — 8		Alcohols C9–11, branched and linear, ethoxylated (1–2.5 EO), sulfates, sodium salt			

Milk tank

Description	pH value	Color	Hazardous component 1	Hazardous component 2	Hazardous component 3
Disinfection product — semi-automatic process	14		Sodium hydroxide	Sodium hypochlorite	
Process cleaner — Cleaning In Place (CIP) process	1.2		Nitric acid	Sulphuric acid	Phosphoric acid

Attention

Make sure that the proper safety decals and safety data sheets are in the vicinity of the chemicals.

8.4 How to handle the Lely Astronaut chemicals?

- To prevent exchange of chemicals (for instance udder care and cleaning detergent), make sure the correct tube is connected to the correct cleaning detergent can. Severe damage to the live stock, humans and parts of the robot can occur when chemical products are exchanged.
- If you are using Lely Consumables: each chemical has a color code. Each chemical inlet tube has a color corresponding with the chemical. Each chemical inlet tube has a disk with the name of the chemical.
- In the Central Unit of the Lely Astronaut, there is space to store the jerrycans for the chemicals (acid based liquid, alkaline based liquid and brush cleaner liquid).
- Always wear protective gloves and clothing and safety goggles and shoes when you perform work on parts where a chemical product flows through.
- Do NOT use chlorine, or other acids than phosphoric acid and citric acid products in the cleaning system.



- Do NOT mix up the chemical products when you replace the jerrycans. Use only the correct chemicals for a hot cleaning.
- If you are not using Lely Consumables, please be aware that the use of alternative products may damage (parts of) the Lely Astronaut.

8.5 How to store the Lely Astronaut chemicals?

As for all chemicals, store the Lely Astronaut Chemicals according to your local laws and regulations and take the Lely Golden Rules as a strong advice. When ordering chemicals, keep the capacity of your drip trays in mind. Make sure that you keep acids and alkalis separately.



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9 Lely Sphere

9.1 Lely Sphere — Short machine description

The Lely Sphere N-Capture Unit

Lely circular manure handling is a farm integrated circular system to extract the valuable components from manure and reduce emissions. Conversion of the manure cellar gases in the N-Capture unit reduces the nitrogen emission which significantly reduces the impact on the environment. Besides the emission reduction, a circular fertilizer product is acquired as a result of the conversion process.

The Lely Sphere N-Capture is intended to be used as an automated on-farm system that reduces the emission of nitrogen to the atmosphere by sucking gases from the air in the manure cellar and converting the ammonia (NH₃) in these gases into a fertilizer product. This system is intended to produce fertilizer products for own use only. This system is not intended to produce fertilizer products for commercial usage. The system is intended to be used on dairy farms.

9.2 Lely Sphere — General safety instructions

- Read the safety instructions on the cans and in the Safety Data Sheets of the chemicals. The safety data sheets of the Lely Consumables are available at Technical documents - Lely.
- The stock of each chemical must be stored according to local rules and regulations. General guidelines can be found in this manual.
- Store the Sphere chemicals in a lockable cabinet or cage, that is protected with a roof:
 - It prevents spill due to rain.
 - It prevents direct contact between the chemicals and sunlight.
 - It helps keeping the temperature between 15 and 25 °C (59 — 77 °F).
 - The roof must be constructed of non-flammable materials, according to NEN 6063.
- Make sure that rain water that had contact with chemical substances can NOT flow uncontrolledly to the soil and public sewers.
- Warning signs of the chemical substances must be placed clearly visible at the storage area.
- Smoking in the vicinity of the chemical storage (within at least 2 meters / 2.2 yards) is strictly forbidden. A sign that states this prohibition must be placed at the storage area.
- Open fire or storage of flammable hazardous substances or other ignition sources in the vicinity of the chemical storage (within at least 2 meters / 2.2 yards) is strictly forbidden. A sign that states this prohibition must be placed at the storage area.

Emergency facilities

These emergency facilities must be present near the storage of the chemicals (the so-called acid boxes):

- First aid kit.
- Personal Protective Equipment: safety goggles, face shield, protective gloves.
- Eye wash station.
- Decals that show where these facilities can be found.

The Lely acid box containers have a special place for keeping these emergency facilities.

9.3 Lely Sphere — acid box

The chemicals of a Lely Sphere N-Capture are delivered in an acid box. This is a box of 1,000 liters (264 gallons) that contains sulphuric acid (96%). An N-Capture installation contains two acid boxes, one that is in use and one spare box that is used when the first box is empty. The acid boxes must be stored in a lockable metal cage, the acid box container. The container has a storage section for Personal Protective Equipment.

Attention

The chemicals (sulphuric acid) for the N-Capture are solely stored in the acid box container, not anywhere else.

Attention

It is NOT allowed to use other acid boxes than the ones that are delivered with the Lely Sphere N-Capture.

9.4 What chemicals are used in the Lely Sphere?

The Lely Sphere N-Capture system uses **sulphuric acid** (96%). See the safety data sheets for the composition and the hazards of this chemical. Make sure that the proper safety decals and safety data sheets are in the vicinity of the acid boxes, preferably on the acid box container.

9.5 How to handle the Lely Sphere chemicals?

The chemicals for the Lely Sphere are delivered in acid boxes (see Lely Sphere — acid box on page 9-2). See the Lely Sphere Operator Manual for how to handle the chemicals (sulphuric acid (96%)).

9.6 How to store the Lely Sphere chemicals?

The only way of storage of Lely Sphere chemicals is in 1,000 liter acid boxes that are stored (per 2 boxes) in an acid box container. One acid box is in use and the other box is spare. When the box that is in use is empty, the spare box is attached to the N-Capture of the Lely Sphere. The empty box has to be replaced by a new full spare box. For more information, see the Lely Sphere Operator Manual.

10 Lely Orbiter

10.1 Lely Orbiter — Short machine description

The Lely Orbiter is intended to be used as an automated on-farm dairy processing system to produce pasteurized and homogenized cow products for consumption.

10.2 Lely Orbiter — General safety instructions

- Read the safety instructions on the cans and in the Safety Data Sheets of the chemicals. The safety data sheets of the Lely Consumables are available at Technical documents - Lely.
- The stock of each chemical must be stored according to local rules and regulations. General guidelines can be found in this manual.

10.3 What chemicals are used in the Lely Orbiter?

Until now, the only chemicals that are used in the Lely Orbiter are ordinary tank cleaning detergents. Chemicals that are especially for the Lely Orbiter are being developed.

10.4 How to handle the Lely Orbiter chemicals?

Since there are no specific chemicals for the Lely Orbiter yet, there is no description for handling. See the safety document sheets of the chemicals that are used.

10.5 How to store the Lely Orbiter chemicals?

Since there are no specific chemicals for the Lely Orbiter yet, there is no description for storage. See the safety document sheets of the chemicals that are used and always keep the Lely Golden Rules in mind.



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11 Customer's responsibilities

When working with chemicals, both the supplier and the customer have their own responsibilities to ensure a safe way of handling and storing. Below you will find what your responsibilities as a customer are:

- Make sure to follow all the recommendations on handling and storing you find in this manual. Not following these recommendations will make all supplier's warranties void, as far as Lely Industries N.V. is concerned.
- Always use the chemicals that are prescribed; exceptions may only be made after written permission of the machine supplier.
- In case of problems with chemicals, always notify the proper company/organization.
- If you find out that chemicals are stolen, always notify the police. Not only because of the financial issue, but also because of the fact that with certain kinds of chemicals explosives can be produced.



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12 General disposal regulations

When you dispose chemicals or chemical packages, always follow what is stated in the safety data sheet(s) and your local rules and regulations. Keep in mind that an empty package can still contain a chemical product and has therefore to be handled as a chemical substance!

Make sure that the company that disposes your chemicals and/or chemical packages, is certified to do so.



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13 Legal

The guidelines for safe use of chemicals that are stated in this manual are strong advices. Although it is not legally obligatory to comply with these guidelines, Lely Industries N.V. can NOT be held liable for the consequences of possible accidents that may arise from not following these guidelines.

If two or more chemicals have been willingly or unwillingly mixed, Lely Industries N.V. disclaims all liability for the consequences of this action, unless the mixing is the result of a prescription in an official Lely manual AND the proper chemicals have been used.



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