

SERVICE ELEMENTS

For the safe and sustainable
use of perchloroethylene solvents



MAXICHECK™ TEST KITS

MAXISTAB™ STABILIZERS

MAXISTAB™ XF-1 ANTIFOAM

CHEMAWARE™ LABORATORY ANALYSES

CHEMAWARE™ SOLVENT TRAININGS

CHEMAWARE™ CHEMICAL & TECHNICAL CONSULTING





THE SAFE-TAINER™ SYSTEM – BEST AVAILABLE TECHNOLOGY (BAT) IN SOLVENT HANDLING

The SAFE-TAINER™ System is a proactive risk management measure. Specifically developed with Responsible Care® guidelines in mind, it has already taken into account potential health and safety risks associated with solvents.

The SAFE-TAINER™ System enables a closed loop solvent management system. It consists of two different exclusively designed double-walled containers – one for the supply of fresh solvent; and the other for the collection of used solvent. The steel outer casing further protects the drum, and prevents damage or spills. This solution not only enables a safer supply of fresh material, it also allows the safer return of used solvents which will be recovered in an accredited professional recycling facility.

Using special accessories, the SAFE-TAINER™ System can be connected to all types of closed cleaning machines in just a few simple steps. Used in combination with closed cleaning equipment, the SAFE-TAINER™ System is considered to be the best available technology (BAT) for the safe, easy and sustainable transport, storage, and handling of solvents.

The SAFE-TAINER™ System, along with other Chemical Product Services provided by SAFECHEM including MAXICHECK™ Test Kits and MAXISTAB™ Stabilizers, enables an optimized solvent cleaning process that is safe, efficient and effective.



MAXICHECK™ TEST KITS AND MAXISTAB™ STABILIZERS

THE CAUSE FOR POTENTIAL ACIDIFICATION IN PERCHLOROETHYLENE SOLVENTS

When cleaning metal parts with perchloroethylene solvents, the solvents can become contaminated due to oils, lubricants, fats as well as their decomposition products. The use of highly stabilized perchloroethylene solvents is therefore recommended. However, under certain operating conditions (e.g. fully enclosed equipment, high temperature, or high soil concentration), the contaminants can decompose further, leading to the formation of hydrochloric and organic acids which can react with the solvent stabilizer. This may result in an insufficiently stabilized solvent, causing an acid-catalyzed decomposition of the cleaning agent.

THE CONSEQUENCE: CORROSION DAMAGE

Acidification can significantly reduce solvent lifespan. It can also cause corrosion of cleaned metal parts as well as damage the cleaning equipment. Post treatment of cleaned parts and equipment maintenance can increase operational costs substantially.

THE SOLUTION: FREQUENT TESTING AND RE-STABILIZATION

All perchloroethylene solvents contain application-specific stabilizers to avoid acidification. During normal usage, the stabilizer concentration in the solvent decreases gradually. In most cases, re-stabilization is therefore necessary, especially in stress condition (distillation and active carbon recovery), in order to:

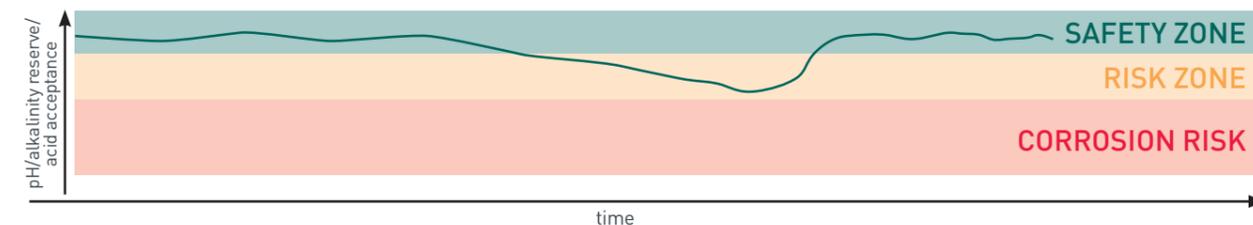
- protect both the cleaning system and the parts to be cleaned from corrosion
- maintain high cleaning quality
- increase solvent lifespan

FINDING THE RIGHT MAXICHECK™ TEST KITS AND MAXISTAB™ STABILIZERS IS EASY:



Solvent	MAXICHECK™ TEST KITS		MAXISTAB™ STABILIZERS	
	Alkalinity test	Acid acceptance test	Increasing alkalinity	Increasing acid acceptance
DOWPER™*	ALKALI		DK-2N	
DOWPER™* MC	ALKALI	AA	DK-2N/DM-4/DM-4N	DJ-1N
DOWPER™* N	ALKALI	AA	DM-4/DM-4N	DL-3

REALIZING HIGHER PROCESS SAFETY THROUGH THE USE OF SERVICE ELEMENTS



← SAFETY ZONE →

All perchloroethylene solvents already contain application-specific stabilizers at the start. As a best practice, regular monitoring with MAXICHECK™ Test Kits should take place from the beginning to ensure a stable cleaning process.



← RISK ZONE →

Frequent monitoring with MAXICHECK™ Test Kits reveals potential challenging situations and provides recommendation on addition of stabilizer if required.



← SAFETY ZONE →

Continuous solvent monitoring and stabilization (if required) can safeguard cleaning machine, protect parts from corrosion, maintain high cleaning quality while extending solvent lifespan.





MAXICHECK™ TEST KITS

MAXICHECK™ Test Kits enable easy on-site testing of solvent quality and effective monitoring of solvent condition.

MAXICHECK™ Alkali test kit measures the alkalinity reserve and pH-value of the solvent.
MAXICHECK™ AA test kit measures the acid acceptance of the solvent, which can effectively catch corrosive hydrochloric acids.

The Test Kits provide reliable information on whether re-stabilization with MAXISTAB™ Stabilizers is required.

MAXICHECK™ ALKALI TEST KIT



Order No.
TKT0001

TEST KIT TO MEASURE THE ALKALINITY RESERVE AND THE PH VALUE OF DOWPER™, DOWPER™ MC and DOWPER™ N

CONTENTS:

- ▶ Solvent test instruments including instructions
- ▶ 1 x 15 ml reagent I
- ▶ 1 x 250 ml reagent II
- ▶ 1 x 125 ml reagent III in dispensing bottle
- ▶ 1 x 250 ml reagent III in refill bottle

REFILL PACK I FOR MAXICHECK™ ALKALI TEST KIT

- For measuring the pH value and the alkalinity

CONTENTS:

- ▶ 1 x 15 ml reagent I
- ▶ 1 x 250 ml reagent II
- ▶ 1 x 250 ml reagent III
- ▶ 5 x pipettes (0.2 ml)
- ▶ 2 x rubber suction cups

REFILL PACK II FOR MAXICHECK™ ALKALI TEST KIT

- For measuring the pH value

CONTENTS:

- ▶ 1 x 15 ml reagent I
- ▶ 2 x 250 ml reagent II

REFILL PACK III FOR MAXICHECK™ ALKALI TEST KIT

- For measuring the alkalinity

CONTENTS:

- ▶ 3 x 250 ml reagent III



Order No.
NST0005



Order No.
NST0039



Order No.
NST0040

MAXICHECK™ AA TEST KIT



Order No.
TKT0003

TEST KIT TO MEASURE THE TOTAL ACID ACCEPTANCE OF DOWPER™ MC AND DOWPER™ N

CONTENTS:

- ▶ Solvent test instruments including instructions
- ▶ 1 x 100 ml titration solution – hydrochloric acid
- ▶ 1 x 100 ml titration solution – sodium hydroxide

REFILL PACK I FOR MAXICHECK™ AA TEST KIT

- Test with hydrochloric acid and sodium hydroxide

CONTENTS:

- ▶ 4 x 100 ml titration solution – hydrochloric acid
- ▶ 6 x 100 ml titration solution – sodium hydroxide
- ▶ 5 x pipettes
- ▶ 2 x rubber suction cups



Order No.
NST0007



Order No.
NST0041



Order No.
NST0042

REFILL PACK II FOR MAXICHECK™ AA TEST KIT

- Test with hydrochloric acid

CONTENTS:

- ▶ 6 x 100 ml titration solution – hydrochloric acid

REFILL PACK III FOR MAXICHECK™ AA TEST KIT

- Test with sodium hydroxide

CONTENTS:

- ▶ 6 x 100 ml titration solution – sodium hydroxide



MAXISTAB™ STABILIZERS

SAFECEM offers a range of stabilizers to help you increase process stability for different cleaning applications with perchloroethylene solvents. For reasons of process reliability, product compatibility and safety, re-stabilization of perchloroethylene solvents should only be carried out with SAFECEM products.



MAXISTAB™ STABILIZERS

Solvent	MAXISTAB™ STABILIZERS	
	Increasing alkalinity	Increasing acid acceptance
DOWPER™*	DK-2N	
DOWPER™* MC	DK-2N / DM-4 / DM-4N	DJ-1N
DOWPER™* N	DM-4 / DM-4N	DL-3



Stabilizer	Packaging sizes (Order No.)	
	MAXISTAB™ DJ-1N	6 x 1 l (MAX0135)
MAXISTAB™ DK-2N	6 x 1 l (MAX0136)	10 l (MAX0145)
MAXISTAB™ DL-3	6 x 1 l (MAX0137)	
MAXISTAB™ DM-4	6 x 1 l (MAX0139)	10 l (MAX0147)
MAXISTAB™ DM-4N	6 x 1 l (MAX0148)	10 l (MAX0602)

MAXISTAB™ XF-1 ANTIFOAM

MAXISTAB™ XF-1 Antifoam is a high-performance defoamer for use in closed metal cleaning systems. Compatible with DOWPER™* MC and DOWPER™* N, it can:

- Reliably reduce foam in the distillation process
- Sustainably prevent new foam formation
- Prevent metal working oils from boiling over from the distillation unit.

Order No. MAX0314



CHEMAWARE™ LABORATORY ANALYSES

OUR SERVICE – YOUR BENEFITS

- Analysis in modern research laboratories in Germany
- The quality, safety and environmental management of our laboratory facilities are audited regularly to ensure compliance with the highest standard
- State-of-the-art analytical methods
- Detailed report of results; where appropriate, with recommendations on issues or proposed measures for solvent maintenance
- Close cooperation with leading manufacturers of cleaning plants and lubricants in Europe

In most cases, fast on-site solvent tests will provide adequate information for re-stabilization. However, in some cases, the cause for insufficient cleaning efficiency may only be determined by means of comprehensive laboratory testing.

Our range of CHEMAWARE™ Lab Services helps you analyze your solvent quality and identify potential cleaning challenges. From routine analyses to complex troubleshooting, our Lab Services help ensure process reliability and optimized cleaning performance.

CHEMAWARE™ SOLVENT ANALYSIS



Order No. SER0401

Examines key parameters affecting solvent quality (e.g. identification of corrosive ions and corrosion products, water content, stabilizer profile, total acid acceptance, co-products, decomposition products) as well as the pH value. As a best practice, the test should be conducted twice a year.

CONTENTS:

- ▶ 1 x 250 ml sample bottle
- ▶ Freight documents and packaging

CHEMAWARE™ OIL COMPATIBILITY TEST



Order No. SER0402

Evaluates the possible impacts of oils on process stability, in particular the effect they could cause under defined distillation conditions. It is recommended to conduct the test prior to changing solvent/introducing new oil type.

CONTENTS:

- ▶ 1 x 250 ml sample bottle
- ▶ Freight documents and packaging

CHEMAWARE™ SPECIAL ANALYSIS



Order No. SER0510

Extended analysis of the solvent or oil used and problem-oriented investigation after discussion with the customer. The "deep drill" of the analysis is especially useful for addressing specific customer requirements.

CONTENTS:

- ▶ 1 x 500 ml sample bottle
- ▶ Freight documents and packaging

CHEMAWARE™ SOLVENT TRAININGS: SPECIALIST KNOW-HOW FOR THE COMPLETE CLEANING PROCESS

We offer you and your employees comprehensive solvent training courses to enable a safe, efficient and optimized solvent cleaning process.

TRAINING CONTENTS

Theoretical Part

- Industrial parts cleaning
- Chemical and physical properties of perchloroethylene
- Risk management and Environmental, Health & Safety (EH&S) measures
- Regulatory framework
- Closed cleaning equipment
- Process technology

Practical Part

- Handling of the SAFE-TAINER™ System
- Taking solvent sample from the cleaning machine
- Monitoring the pH-value and quality of the solvent with test kits
- Documenting the solvent logbook
- Maintaining solvent stability with stabilizers for quality assurance and equipment protection

The solvent training courses take place in your company and can be catered to your individual needs and processes.

CHEMAWARE™ CHEMICAL AND TECHNICAL CONSULTING

SAFECEM provides consultation on specific issues related to the safe and sustainable use of solvents, from handling practices and optimization of the cleaning process all the way to implementation of new cleaning solutions.

Our individual consulting for your specific cleaning applications and requirements enables you to find the optimized solution that balances ecology, economy and social responsibility.



You need to decide on which solvent to use for your cleaning?
You want to train your employees in safe solvent use?
You have a question related to your cleaning process?

CONTACT US:

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WHAT CAN YOU ACHIEVE USING SAFECEM SERVICE ELEMENTS FOR PERCHLOROETHYLENE SOLVENTS?

- Optimized cleaning results
- Safe and reliable cleaning process
- Extended lifespan of solvents
- Protection of your cleaning machine
- Protection of parts from corrosion
- Well-trained employees

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