

## Sersolv<sup>®</sup> line 2023/Q2

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## Sersolv<sup>®</sup> line

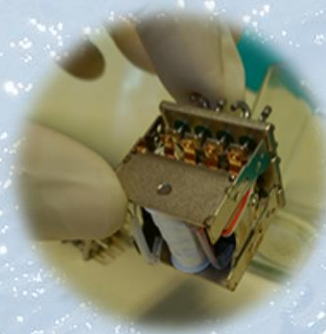
High-precision cleaning  
in a short and safe cycle

### Generality

To meet the needs of technical and high-tech industries during the decontamination stages of precision parts. In order to achieve an optimum level of quality, infinitely repeatable, with a short, energy-efficient, environmentally friendly cycle, as the need to reduce carbon dioxide emissions increases. Halogenated fluids are essential ingredients.

#### They offer many benefits

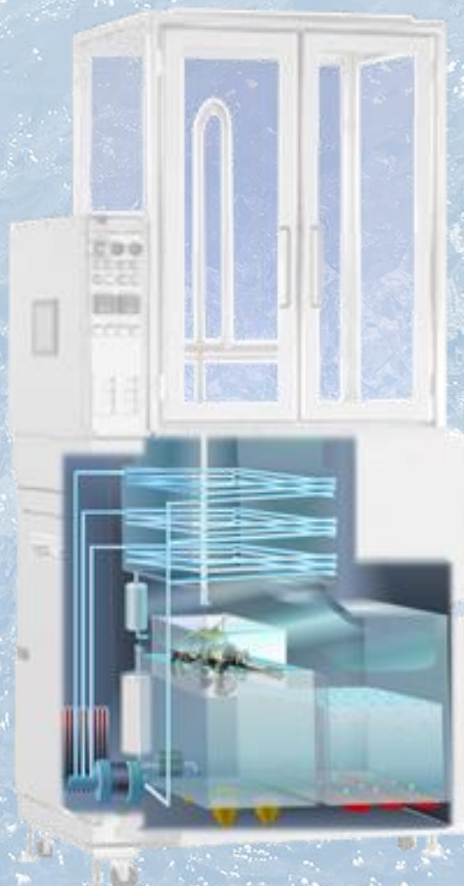
- Efficient & Versatile
- Short and flexible cycle
- Stable and non-flammable
- Recyclable
- Energy-efficient



#### The 3 main principles of implementation

The most commonly used are in the "steam phase" machine, in the vacuum machine or on a cleaning bench.

1. Immersion cleaning with finishing and steam rinsing. The most commonly used method. Flexible operating principle, economical machine, continuous product recycling.
2. Cleaning in a sealed machine under vacuum allows the lowest consumption to be achieved, but for the moment limited to products with the highest boiling point.
3. Closed-loop cleaning is mainly used for cleaning during the manufacture or treatment of internal surfaces of pipes, pipes, technical pipes.





## Service Chimie offers Sersolv<sup>®</sup>:

A range resulting from joint research and development for practical applications of original fluorinated compounds with links that help protect the ozone layer and prevent global warming.

They are not only suitable substitutes for HCFC, HFC, HFE and PFCs. They also replace chlorinated solvents to reduce VOC emissions and are an alternative to aqueous cleaning agents that consume massive amounts of energy.

Environmentally friendly with an ozone depletion potential of ZERO (or close to zero) and a short atmospheric lifetime. They are particularly suitable, whether for small series or on large production lines, for very high precision cleaning operations:

- by immersion with ultrasound and vapor phase or in a vacuum machine or on a bench in a closed circuit.
- For decontamination, defluxing, debinding, de-de-salting, pickling, degreasing or removal of specific pollutants (submicron particles, silicones, fluorinated substances, hydraulic fluids, water, etc.)
- On all types of materials: plastics, elastomers, glasses, metals, composites, etc.
- With low toxicity and high safety of use.

## Physical Characteristics

### Main physical characteristics

- Colourless liquids
- Immediate drying
- Residue-free
- Without a flash

### Sersolv<sup>®</sup>

caractéristiques physiques	Nouveaux															
		3P-HP	3T-SV	3T-SX	3T-TE	TBX+	M36	M36E	O413	OME	OT25	S&7	S&7T	T05	T08	
Poids moléculaire		148	128	127	128	123	164	152	362	131						
Fusion T°C	°C	-50	-43	-43	-43	-44	-107	-80	-90	-80	-20				-49	-40
Ebullition T°C	°C	36	36	36	36	36	34	32	111	39	29	55			47	47
Density (g/cm <sup>3</sup> )	g/cm <sup>3</sup>	1.3	1.3	1.3	1.3	1.2	1.4	1.3	1.6	1.3	1.3				1.3	1.3
Viscosité	mPa.s	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.7	0.7	0.3				0.4	0.4
Tension de surface	mN/m	15	18	15	18	17	13	14	18	16	16				21	21
Pression de vapeur	kPa	53	36		36	69	70	76	2.9	60	86				45	45
Chaleur latente vaporisation	kJ/kg@bp	200	209	208	208	215	166	188	115	263	87				280	280
Indice Kauri-Butanol	ikBu	13	25	25	25	76	12		6		20	44			103	99



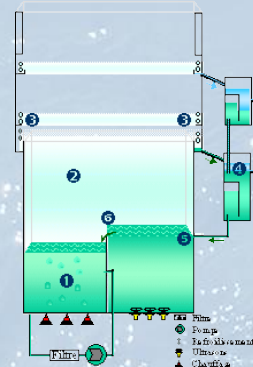
## Installation and cleaning equipment

### Cleaning process with steam phase

Based on halogenated solvents, they can combine spraying, ultrasound, liquid and gas phase immersion. This principle allows reproducibility, identical from the first to the Xth part with a distilled product cleaning finish. The halogenated solvents selected are non-flammable, so they can be used hot in the vapour phase in a simple and inexpensive material. They leave no residue after quick drying. They are perfectly compatible with ultrasound and are continuously recyclable.

### Distillation and product filtration principle

The solvent is boiling in the "dirty" tank where the removed pollutants accumulate. The distilled products are returned to the cleaning tank where the parts to be decontaminated are immersed. The parts will complete their cycle by passing through the solvent vapor phase, acting as the final rinse.



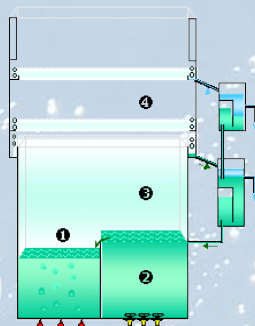
Règlage des températures de consignes machine (°C)	Sersolv®														
		3 P-HP	3 T-SV	3 T-SX	3 T-TE	TBX+	M36	M36E	O413	OME	OT25	Sc7	Sc7T	TO5	TO8
<b>Point d'ébullition</b>	Solvant	40	36	36	36	36	34	32	111	39	29	54		47	47
<b>Température de chauffe</b>	cuve ébullition	44	39.6	39.6	39.6	39.6	37.4	38	122	43	31.9	60		51.7	51.7
<b>Contrôle pollution</b>	cuve ébullition	48	43.2	43.2	43.2	43.2	40.8	40	133	47	34.8	65		56.4	56.4
<b>Température ultrason</b>	cuve ultrason	36.7	33	33	33	33	31.2	30	101	36	26.6	40		43.1	43.1
<b>Détection fuite vapeur</b>	Serpentins	35.7	32.1	32.1	32.1	32.1	30.4	29	98.7	25	25.9	45		42	42



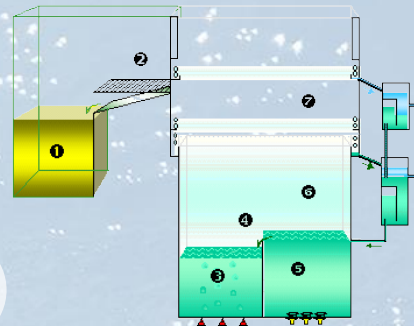
## The 3 Types of Vapor Phase Cleaning Procedures

Can be combined according to the options and number of tanks of the machine

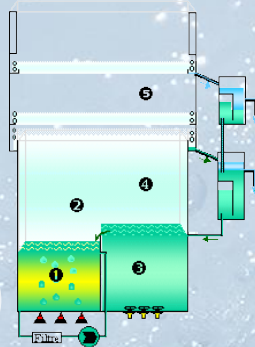
Pure Halogenated Solvent /



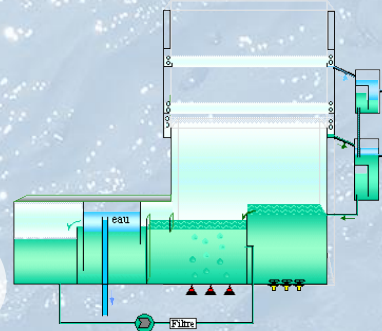
Cleaning with pre-solvents



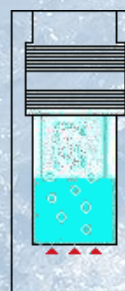
Cleaning with + co-solvent



Water Displacement



Some examples of configurations





## Vacuum cleaning process

Vacuum equipment is more complex and expensive, but allows for optimum product recycling, which generally allows for a high saving of new product. On the other hand, the cycle time is longer and less flexible to adapt to mass production or for access to "self-service" cleaning in the case of shared machines.

## Closed-loop bench cleaning process

For the internal cleaning of equipment, the cleaning bench allows an optimal result with the guarantee of leaving no residue. The product is taken from a reservoir, then once it has passed through the rooms it is sent to a distiller who will replenish the initial reserve.

Sersolv®	3 P-HP	3 T-SV	3 T-SX	3 T-TE	TBX+	M36	M36E	O413	OME	OT25	Sc7	Sc7T	TD5	TD8
Moyens de mise en œuvre														
Immersion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ultrasons	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phase vapeur	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Aspersion	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
sous dépression	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
Sous pression	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
Fontaines	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
Aérosol	✗	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
Manuel*	✗	✗	✗	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶

## Alternative Implementation Process

The safety features of the products make it possible to adapt to other processing processes such as simple or pressure spraying. In general, in a containment system to limit product losses and allow the recovery of recovered quantities.





## Pollutants removed

Sersolv is effective on a wide variety of organic pollutants

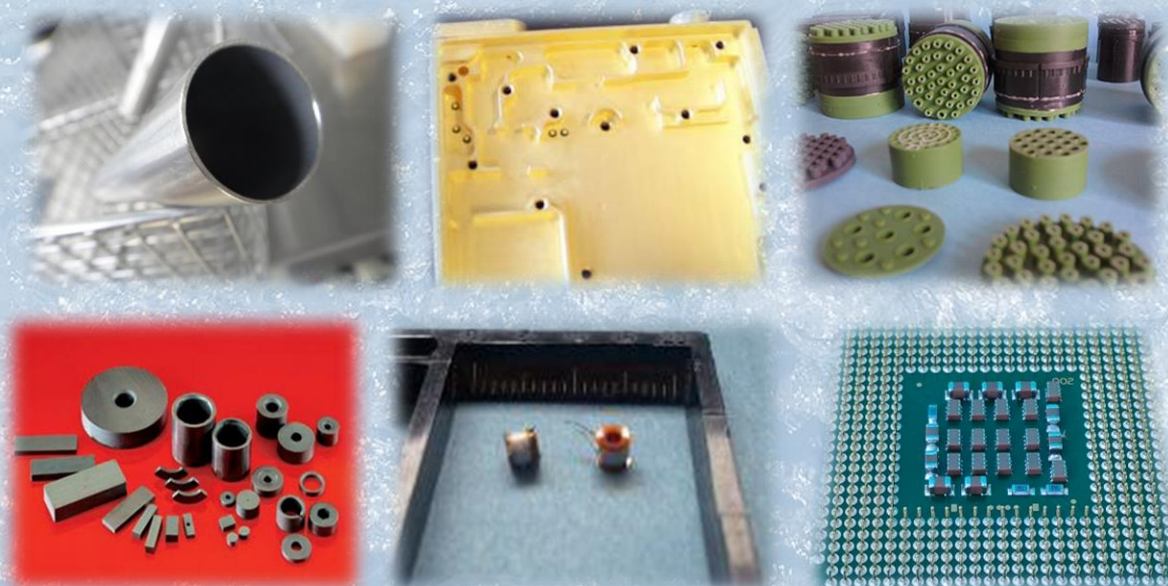
références		3 P-HP	3 T-SV	3 T-SX	3 T-TE	TBX+	M36	M36E	O413	OME	OT25	Sc7	Sc7T	TD5	TD8	
Particules	Élimination de particules	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Matériaux sensibles	✓	▶	✗	✓	▶	✓	✓	✓	✓	✓	✓	✓	✓	▶	▶
	Élimination des particules (CMOS)	✓	✓	✗	✓	▶	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ions	Élimination de contaminants ioniques	▶	✓	✗	✓	▶	▶	✓	✓	✓	✓	✓	✓	✓	▶	▶
	Nettoyage de circuits imprimés (PCB)	▶	▶	✗	✓	▶	▶	✓	✓	✓	✓	✓	✓	✓	▶	▶
	Defluxage électronique	▶	▶	✗	✓	▶	▶	✓	✓	✓	✓	✓	✓	✓	▶	▶
Résines vernis	Élimination de colophane	▶	▶	✗	✓	▶	▶	✓	✓	✓	✓	✓	✓	▶	▶	
	Nettoyage des écrans desérigraphie	▶	▶	✗	✓	▶	▶	✓	✓	✓	✓	✓	✓	▶	▶	
	Résine PU non polymérisée	▶	▶	✗	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
	Résine époxy non polymérisée	▶	▶	✗	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
Graisse et huiles	Décapage en peinture vernis	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
	Élimination d'huiles / graisses légères	▶	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Huiles / graisses moyennes	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
	Huiles / graisses lourdes	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
	Élimination huile hydrocarbure	▶	▶	✗	▶	✓	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
Fluides spéciaux	Élimination paraffine de protection	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
	Huiles de coupe graisse d'étrage	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
	Fluide hydraulique FH2	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
Huiles spéciales	Fluide hydraulique FH4 / FH5	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
	Élimination lubrifiants fluorés	✓	✓	✗	▶	▶	✓	✓	✓	✓	✓	✓	✓	✓	▶	▶
	Élimination lubrifiants silicones	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
	Equipements sous tension	✓	✓	✗	▶	▶	✓	✓	✓	✓	✓	✓	✓	✓	▶	▶
autres	Ensembles électromécaniques	✓	✓	✗	▶	▶	✓	✓	✓	✓	✓	✓	✓	✓	▶	▶
	Suppression des empreintes digitales	▶	✓	✗	▶	✓	▶	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Séchage par déplacement	▶	▶	✗	▶	✗	▶	▶	▶	▶	▶	▶	▶	▶	✗	✗
	Séchage par absorption d'eau	▶	▶	✓	▶	✗	▶	▶	▶	▶	▶	▶	✗	▶	✗	✗
	Agent de rinçage	✓	✓	✗	✓	▶	✓	✓	✓	✓	✓	✓	✓	✓	▶	▶
	Rinçage de co-solvants	✓	✓	✗	✓	▶	✓	✓	✓	✓	✓	✓	✓	▶	▶	



These solvent functions also make them suitable for other uses, as well as the physical, chemical characteristics and their stability also lead them to other uses.

		Sersolv®													
Nom Produit		3 P-HP	3 T-SV	3 T-SX	3 T-TE	TBX+	M36	M36E	O413	OME	OT25	Sç7	SçTT	TO5	TO8
<b>Autres applications solvants</b>															
Fluide porteur/dépose	dépose d'adhésifs	✓	▶	✗	▶	✓	✓	▶	✓	✓	▶			✓	✓
	dépose de revêtements	✓	▶	✗	▶	✓	✓	▶	✓	✓	▶			✓	✓
	dépose de lubrifiants	✓	▶	✗	▶	✓	✓	▶	✓	✓	▶			✓	✓
	dépose de matériaux fluo rés	✓	▶	✗	▶	▶	✓	▶	✓	✓	▶			▶	▶
	dépose d'encre	✓	▶	✗	▶	▶	✓	▶	✓	✓	▶			✓	✓
	dépose de fongicide bactéricide	✓	▶	✗	▶	▶	✓	▶	✓	✓	▶			✓	✓
	dépose d'autres matériaux	▶	▶	✗	▶	▶	▶	▶	▶	▶	▶			✓	✓
	dépose de lubrifiants siliconés	✓	▶	✗	▶	▶	✓	▶	✓	✓	▶			✓	✓
Autres 3D	déliantage métaux frittés	✗	▶	✗	▶	▶	✗	▶	✗	✗	▶			✓	✓
	Nettoyant impression 3D plastique	▶	✓	✗	✓	▶	▶	✓	▶	▶	▶			▶	▶
Autres usages	Formulations d'aérosol	✗	✗	✗	✗	✗	▶	▶	▶	▶	✗			▶	▶
	Formulations d'agents de nettoyage	▶	✓	✗	✓	▶	✓		✓	✓	✓			▶	▶
	Fluide d'expansion mousse PU	✓	✓	✗	✗	✗	✓	▶	✓	✓	▶			▶	▶
	Fluide diélectrique	✓	▶	✗	✗	✗	✓	▶	✓	✓	▶			▶	✗
	Fluide caloporteur	✓	▶	✗	✗	✗	✓	▶	✓	✓	▶			▶	✗
	Fluide de coupe	✓	✓	✗	✗	✗	✓	▶	✓	✓	▶			▶	✗
	Fluide de refroidissement	✓	▶	✗	✗	✗	✓	▶	✓	✓	▶			▶	✗
	Fluide thermodynamique	✓	▶	✗	✗	✗	✓	▶	✓	✓	▶			▶	✗

Given the diversity of formulations among different manufacturers, these data are provided for information purposes only. They are not a substitute for control tests





## Material Compatibility

In general, Sersolv is compatible with a majority of metals used in industry. However, some elastomers and fragile plastics should be avoided. Similarly, fluorinated materials are susceptible to penetration or degradation by fluids of the same chemical nature.



Compatibilité avec les plastiques et élastomères		Sersolv®													
		3 P-HP	3 T-SV	3 T-SX	3 T-TE	TBX+	M36	M36E	O413	OME	OT25	Sc7	Sc7T	TO5	TO8
Poly (Acrylonitrile Butadiène Styène) ABS	ABS	✓	▶	▶	▶	▶	▶	✓	✓	✓	▶			▶	▶
Nitrate de cellulose	CN	✓						✓	✓	✓					
Polychloroprene (CR)	CR	✓						✓	✓	✓					
Verres Ionomer CVI, CVIH	CVI	✓						✓		✓					
Epoxy (FR)	EP	✓						✓		✓					
Poly (tétrafluoroéthylène d'éthylène) ETFE	ETFE							▶							
Polystyrène à impact élevé HIPS	HIPS							▶							
Polymère de cristal liquide (Liquid Crystal I	LCP							▶							
Nylon	NY	✓	✓	✓	✓	✓			✓		✓			✓	✓
Nylon6	NY6		✓	✓											
Nylon66	NY66		✓	✓											
Polyacrylate, Polyamides (Nylon)	PA	✓	▶	▶	▶	▶			✓		▶			▶	▶
Polybutylène Téréphtalate	PBTP	✓							✓						
Polycarbonate	PC	✓	▶	▶	▶	▶			✓		▶			▶	▶
Polychlorotrifluoroéthylène (PCTFE ou PTF	PCTFE														
Polyethylene (LP)	PE														
Polyétheréthercétone (PEEK)	PEEK							✓							
Polyéthylène haute densité (HP)	PEHD		✓	✓	✓	✓	▶				✓			✓	✓
Polyétherimide PI PEI PAI	PEI	✓						✓		✓					
Polyetherketone (PEK)	PEK														
Polyéthylène téréphtalate, PET, PBT (FR)	PET	✓	✓	✓	✓	✓	▶		✓		✓			✓	✓
Polyéthylène Téréphtalate	PETP	✓							✓						
Phénol formaldéhyde (phénolique)	PF														
Poly(méthacrylate de méthyle) PMMA	PMMA		▶	▶	▶	▶					▶			▶	▶
Polyacetal, Polyoxyméthylène POM	POM	✓						▶		✓					
Polypropylene PP	PP	✓	✓	✓	✓	✓	▶		✓		✓			✓	✓
Oxyde de polyphénylène (PPO)	PPO														
Sulfure de polyphénylène (PPS)	PPS		✓	✓	✓	✓					✓			✓	✓
Polystyrène PS	PS	✓	▶	▶	▶	▶	▶		✓		▶			▶	▶
Polysulfone	PSO	✓	▶	▶	▶	▶	▶		✓		▶			▶	▶
Polyarylsulfone	PSU														
Polychlorure de vinyle PVC, CPVC	PVC							✓							
Polyfluorure de vinylidène PVDF	PVDF		✓	✓	✓				✓		✓				





## Compatibilité avec les plastiques et élastomères (suite)

Matières

		3 P-HP	3 T-SV	3 T-SX	3 T-TE	TBX+	M36	M36E	O413	OME	OT25	Sç7	Sç7T	TO5	TO8	
Chlorosulfonated PE	CFPE															
Polyéthylène chlorosulfoné (CSM)	CSM		▶	▶			▶				▶				▶	▶
Ethylene propylene diene terpolyme	EPDM		▶	▶			▶				▶				▶	▶
Copolymère d'éthylène et de propylène	EPM		▶	▶			▶				▶				▶	▶
Polysulfide rubber FA(T)	FA															
Poly (éthylène/propylène perfluoré)	FEP	✓	✓	✓			✓	✓	✓	✓	✓				✓	✓
Fluoroelastomer E (FKM)	FKM	✓	▶	▶			▶		✓		▶				▶	▶
Élastomères silicone FVMQ	FVMQ		▶	▶			▶				▶				▶	▶
Caoutchouc butyle IIR	IIR	✓							✓							
Caoutchouc acrylonitrile-butadiène	NBR	✓	▶	▶			▶		✓		▶				▶	▶
Caoutchouc naturel NR	NR	✓							✓							
Perfluoroélastomère	PFE	✓	✓	✓			✓		✓		✓				✓	✓
Polytétrafluoroéthylène PTFE / EPDM <sup>3</sup> TFE / EPDM			▶	▶		▶	▶				✓				✓	✓
Silicone (Q)	Q	✓	▶	▶			▶	✓	✓		▶				▶	▶

All metals and alloys are compatible. Even light metals such as aluminum or beryllium, which are to be monitored with chlorinated solvents, do not require any special precautions.



## Compatibilité avec les métaux

Matières

		3 P-HP	3 T-SV	3 T-SX	3 T-TE	TBX+	M36	M36E	O413	OME	OT25	Sç7	Sç7T	TO5	TO8
Aluminium	Al	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Argent	Ag	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Béryllium	Be	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Cuivre	Cu	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Etain	Sn	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Indium	In	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Nickel	Ni	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Or	Au	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Plomb	Pb	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Titane	Ti	✓	▶	▶	✓	▶	✓	✓	✓	✓	✓	▶		▶	▶
Acier	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Inox	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Laiton	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Bronze	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Fonte	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓



## Health, Safety & Environment

Safety, hygiene and environmental features make it perfectly suited to current and future standards.

Nom Produit	Risque sécurité	Poitréclair	Santé Hygiène	VME	Environnement	GWP	ODP
	°C	calculé	GWP	ODP			
Sersolv® 3 P-HP	Aucun	840	950	0.00000			
Sersolv® 3 T-SV	Aucun	553	512	0.00006			
Sersolv® 3 T-SX	Aucun	553	512	0.00006			
Sersolv® 3 T-TE	Aucun	552	510	0.00006			
Sersolv® T3X+	Aucun	365	240	0.00013			
Sersolv® M36	Aucun	500	2	0.00000			
Sersolv® M36E	Aucun	500	9	0.00000			
Sersolv® O413	Aucun	10000	25	0.00000			
Sersolv® OME	Aucun	750	2.5	0.00000			
Sersolv® OT25	Aucun	425	2.5	0.00010			
Sersolv® Sc	Aucun	250	1	0.00002			
Sersolv® Sc7T	Aucun	210	1	0.00001			
Sersolv® TO5	Aucun	201	15	0.00010			
Sersolv® TO8	Aucun	179	2.5	0.00010			

## Storage & Packaging

### Storage & Storage

Sersolv does not require any extraordinary precautions for their storage. A place between -50°C +50°C sheltered from bad weather and sun is recommended.

The stated shelf life is 24 months.

### Packaging

1000 liter tanks (1100 kg to 1600 kg)

208 litre drums (225 kg to 300 kg)

20 liter tonelets ( 25 kg 30 kg)

5 liter canisters (6 kg to 7 kg)





## Conversion Guide

Below are the application matches between Sersolv and various old and current market references. These conversions are given as an indication but require expertise on a case-by-case basis. Our technical services will advise you on how to refine the choice of product and process.

Conversion Chart		
Historical Products	Intermediate products	Sersolv®
<b>CFC 113</b> (Delifrene HP, Freon TF, Forane 113, Arklone P, Frigen 113, Kaltron, Flugene 113, Genesolv...)	⇒ Novec® 7100 / 7200 / 7300	⇒ <b>3 P-HP</b>
	⇒ Vertrel® XF, Forane® 365 HX	⇒ <b>M36</b>
	⇒ Fluorinet®, Performance Fluid®	⇒ <b>O413</b>
	⇒ Galden LS, SV, HT, D0...	⇒ <b>Sc7*</b>
<b>HCFC 141b</b> (Sersolv HP, Solkane 141b, Soldry NP, Forane 141 DGX, Genesolv 2000...) <b>HCFC 225</b>	⇒ Novec® 71DA / 71DA / 72DE / 72DA / 73DE	⇒ <b>3 T-SV</b>
	⇒ Vertrel® XMS	⇒ <b>OT25</b>
	⇒ Calden® TMS / TME / TMO Solstice® PF, Solvokane®	⇒ <b>M36E</b>
<b>CFC 113S</b> (Delifrene HS, Freon, Forane 113S), HCFC 141bS <b>(Sersolv SX, Soldry DS1/DS2)</b>	⇒ Novec® DS1 / DS2	⇒ <b>3 T-SX</b>
	⇒ Vertrel® X-DA/X-DF Solvokane® S	⇒ <b>OME</b>
<b>CFC 113AzM</b> (Delifrene ME, Freon TMS, Forane 113 MES, Delifrene ME, Arklone AM), HCFC 141bAzM <b>(Sersolv ME, Soldry MS, Forane 141b MGX)</b>	⇒ Novec® 71IPA / 71IBuA / 72IPA	⇒ <b>3 T-TE</b>
	⇒ Vertrel® XM	⇒ <b>M36E</b>
<b>CFC 113 AzA</b> (Delifrene AC)	⇒ Novec® 71DA / 71DA / 72DE / 72DA / 73DE	⇒ <b>OT25</b>
	⇒ Vertrel® XMS	⇒ <b>TO5</b>
<b>CFC113 AzC</b> (Delifrene CM, Freon TMC) <b>HCFC 141b AzC</b> (Sersolv® CM) <b>T111</b> (Trichloroethane), <b>TCE</b> (Trichloroethylene, Tavoxene, Triklone), PCE (Perchloroethylene, Perklone), <b>WFD</b> (Dichloromethane, Metoklone),	⇒ Novec® 71DA / 71DA / 72DE / 72DA / 73DE	⇒ <b>T3X+</b>
	⇒ Vertrel® XMS / MCA / SION	⇒ <b>TO5</b>
<b>nPB</b> (n-Bromopropane, Lenium, EnSolv)	⇒ Calden® PRO / TMS / TME / TMO	⇒ <b>TO8</b>
	⇒ Solvokane® X	⇒ <b>Sc7T*</b>

\* Registered trademarks: Fluorinet®, Performance Fluid, Novec® / 3M™, Vertrel / Dupont de Nemours™, Calden® / Inustry™, Forane® / Arkema™, Solstice® / Honeywell™

The substances and references mentioned are among the most common on the European or French market. Other names





## Areas of application

These formulations have proven their worth for several years in many cutting-edge fields. Both for classic fine cleaning applications and to respond to specific problems. Always with the aim of achieving a very high level of decontamination.

The ingredients allow them to meet ISO 6/5 cleanroom needs

### ❖ **Aeronautics, space, armaments**

- Tubing decontamination
- Particle control and counting for the space sector.
- Space Relay Cleaning
- Fuel injection, landing gear,
- oxygen systems,
- Printed Parts

### ❖ **Car**

- Fuel injection, compressors, relays, sensors, switches,
- safety system, anti-lock braking systems

### ❖ **Medical Devices**

- Oxygen systems, goggles, catheters,
- Surgical Devices/Needles, Implants

### ❖ **Energy**

- Battery cells,
- Photovoltaic cells,
- fuel cells,
- Heat exchangers, turbines

### ❖ **Electronics, Microelectronics / Semiconductors**

- Defluxing of electronic boards
- Cables, Fiber Optics, Connectors
- Front-opening silicon wafer, unified pods (FOUPs) and flip chips
- Removal of submicron CMOS particles
- Cleaning before varnishing or encapsulation
- Cleaning during pre-plating

### ❖ **Additive manufacturing, 3D production**

- Debinding of sintered metals in additive production.
- Debinding and departiculating on plastic or elastomeric parts.
- Elimination of 3D support

### ❖ **Luxury and top-of-the-range amenities**

- Watches, Jewelry, Lenses, Flat Panel Displays, Optical Assemblies

### ❖ **Precision mechanics, electromechanics**

- Cutting oil removal

### ❖ **Optics, optronics**

- Scientific Optics Cleaning
- Drying glasses by moving water
- Marking removal and polishing pastes

### ❖ **Plastics, composites**

- Cleaning of plastic or elastomer parts that are usually sensitive to solvents.
- Cutting fluid and polishing of optics and elastomer and composite

### ❖ **Metalworking**

- Degreasing
- Removal of stretching grease
- Cleaning before and after soldering

### ❖ **Surface treatment**

- Preparation before treatments



## Replacement Guide

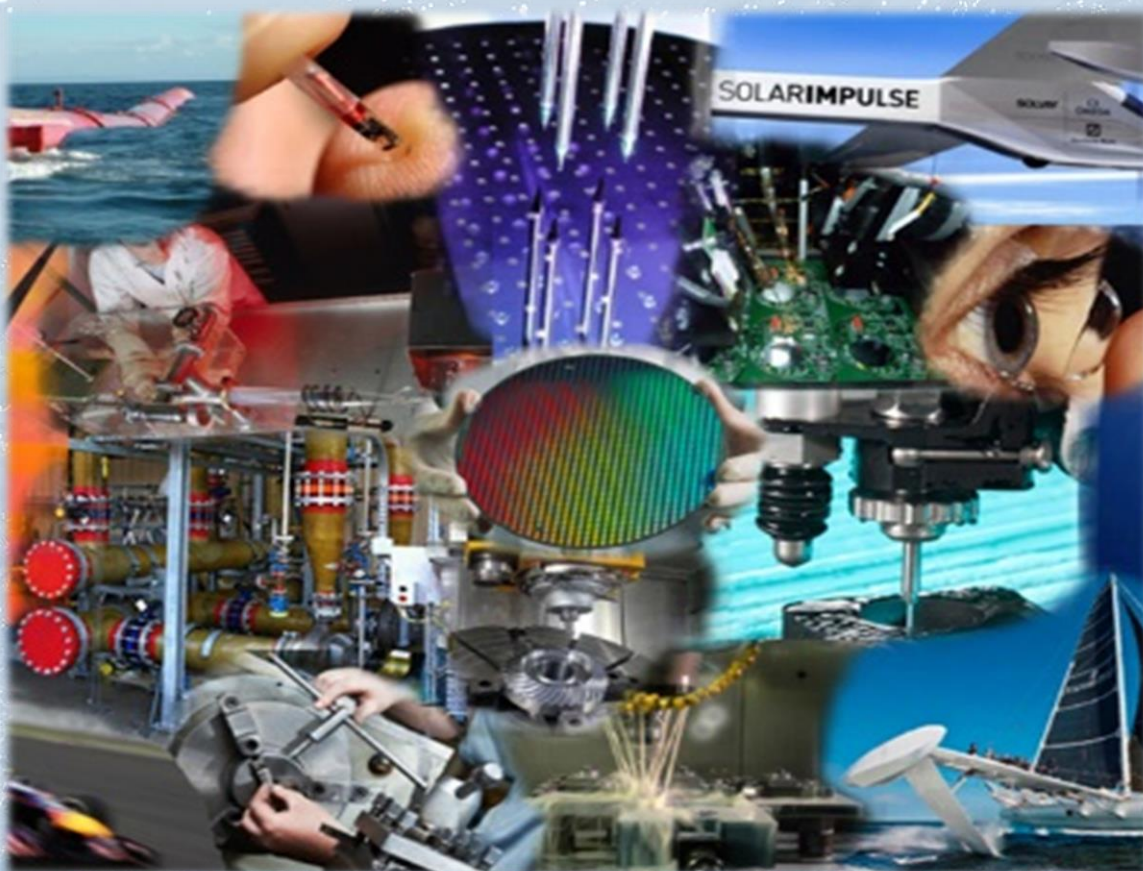
The range of solvents has been designed to replace halogenated solvents with toxicity problems and solve environmental problems such as ozone depletion and global warming in the same equipment. These solvents do not have a flash point, explosion-proof equipment is not needed where it is used.

### Recommendation during the substitution operation

1. Drain the product from tanks, water separators, portafilters, and any other components of the system that are in contact with the solvent.
2. Replace the filters. Replace Molecular Sieves (Desiccation drying isn't as crucial with modern cleaning solvents, a Florentine vase system may be sufficient.)
3. Wipe down the tanks to ensure no residue is left, Rinse the liquid lines with a small amount of the replacement solvent. Load the steam degreasing tank with a small amount of the selected Substitute Solvent and flush the lines with liquid (do not allow the pump to run dry during the flushing procedure).
4. Reload the machine with the new product. Turn on the equipment, start the chiller, turn on the heater and pumps.
5. Adjust the set temperature settings according to the settings of the chosen substitute.

**The machine is ready to process parts**

## Conclusion



Transmettez-nous votre cahier des charges et vos spécifications



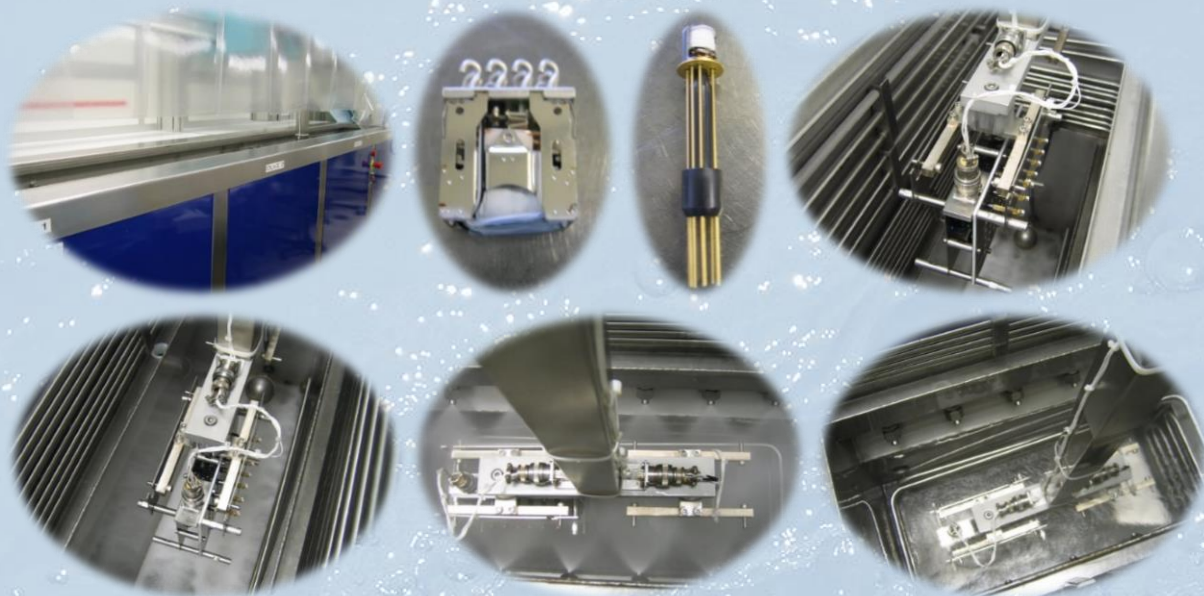
## Additional information

### Development

As the need to reduce carbon dioxide emissions increases, energy consumption new fluorinated fluids are the essential ingredients.

Currently, several other molecules are being studied in several formulations to complete the range and replace the products that are set to disappear in the coming years. They will be available in the coming months.

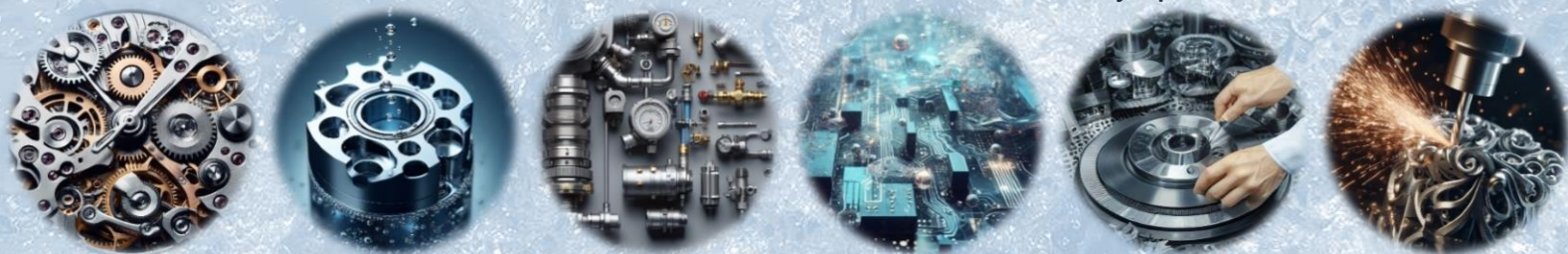
Our services are at your disposal to provide you with any additional technical or commercial information. Contact us.



### Other materials

We have developed other solvent or detergent cleaning products for use in vacuum sealers, immersion, sprinklers, fountains, tunnels, etc.

Department Chimie offers a wide range of chemical products for high-tech industries. Do not hesitate to visit our website and/or ask us any questions.



Tel: +33 (0) 1 64 30 89 22

Languages spoken: French, English, Spanish, Portuguese

 [www.service-chimie.fr](http://www.service-chimie.fr) 

Chemistry Department - SAS with a capital of €180,000 RCS 331 915 645 00039 Meaux

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