**MICROCONTAMINATION CONTROL** 

# **Optimizer**<sup>®</sup> Filters

Hydrophobic and hydrophilic filtration of process chemicals enabling easy scale up from laboratory and small-scale R&D testing to larger volume filtration solutions

Optimizer<sup>®</sup> filters offer cost-effective, scalable and convenient solutions for specialty chemical development processes by improving filtration of photoresists and other process chemicals, and preventing the release of retained particles back into the process. Depending on the filtration device, retention ratings can be as tight as 3 nm, ensuring excellent small particle retention. Additionally, minimal hold-up volume, coupled with easy changeout, reduces chemical waste and speeds up product development.

#### Easy Scale Up to Larger Filtration Devices

Optimizer lab-scale filters are effective at testing the filtration performance of process chemicals on a small scale. Optimizer V-47 and C47 provide an economical alternative to larger filter formats for lab-bench testing and particle evaluation. These filters are ideal for the R&D filtration of photoresist and other specialty chemicals in development. Optimizer C47 is also designed for pilot lines and chemical sampling on a laboratory or bench-scale basis. The testing results provide a useful benchmark for scaling up to larger area filtration devices without having to change the filter type.

#### **Optimized Filtration of Process Chemicals**

The UPE membrane of the Optimizer filters improves filtration of photoresists and other process chemicals, prevent the release of retained particles back into the process, and provide hydrophobic filtration of photoresists, thinners and solvents. Optimizer V-47 and C47 support the R&D filtration and testing of photoresists, dielectrics, anti-reflective coatings (ARC), and advanced chemicals in the laboratory. Optimizer D300 and D600 filters are geared to small-volume filtration of photoresists, resist dielectrics, and solvents.



#### No Prewetting Required

The UPE membrane of the Optimizer filters requires no prewetting. No time is wasted to wet or flush the filters, and as a result, the filters are fully functional immediately after installation. Without the need for prewetting, they reduce the likelihood that microbubbles will form and avoid the problems associated with incomplete wetting and the mixing of incompatible chemicals. These point-of-use (POU) photochemical filters fully optimize the UPE membrane, ensuring maximum flow.



### FEATURES & BENEFITS

Easy scale up	Cost-effective, scalable and convenient alternative for testing and particle evaluation of process chemicals:		
	<ul> <li>Optimizer C47: Pilot lines and chemical sampling on a laboratory or bench-scale basis</li> </ul>		
	Optimizer V-47: R&D filtration of photoresist or specialty chemicals in the laboratory		
	Optimizer D300 and D600: Small-volume filtration of process chemicals		
	<ul> <li>Optimizer D, D LE, D PR and D PR-L: Small to mid-volume POU photochemical and solvent filtration needs</li> </ul>		
	Testing results provide a useful benchmark for scaling up to larger area filtration devices without changing the UPE membrane type		
Optimized filtration of process chemicals	Improved filtration of photoresists and other process chemicals without releasing retained particles back into the process:		
	<ul> <li>Optimizer C47 and V-47: R&amp;D filtration and testing of photoresists, dielectrics, anti-reflective coatings (ARC) and advanced chemicals</li> </ul>		
	<ul> <li>Optimizer D300 and D600: Filtration of photoresists, resist dielectrics and solvents</li> </ul>		
	<ul> <li>Optimizer D, D LE, D PR and D PR-L: Hydrophobic filtration of photoresists, thinners and solvents</li> </ul>		
No prewetting required for	Reduces the potential sources of microbubble formation		
OFE membrane	Avoids problems associated with incomplete wetting and the mixing of incompatible chemicals		
	Fully optimizes the UPE membrane and ensures maximum flow		
	No time wasted to wet or flush the filters		
	Fully functional filters immediately following installation		

#### FILTER ATTRIBUTES

The following table summarizes filter attributes.

FILTER TYPE	MEDIA	RETENTION	APPLICATIONS	SCALE
C47	UPE (hydrophobic)	20 nm, 0.05 μm, 0.1 μm, 0.2 μm, 0.5 μm, 1.0 μm	Filtration of photoresists and advanced chemicals	Lab scale
	PTFE (hydrophobic)	0.1 µm		
	UPE Special Clean (hydrophobic)	20 nm, 0.05 μm, 0.1 μm, 0.2 μm, 0.5 μm, 1.0 μm		
	PCM UPE Special Clean	20 nm		
	PP	0.6 μm, 1.2 μm, 2.5 μm, 5.0 μm, 10 μm		
V-47	UPE	10 nm, 20 nm, 30 nm, 0.05 μm, 0.1 μm	Filtration of photoresists, dielectrics and anti- reflective coatings (ARC)	Lab scale
D300, D600	UPE	10 nm, 20 nm, 0.05 μm, 0.1 μm, 0.2 μm, 0.5 μm, 1.0 μm	Filtration of photoresists, resist dielectrics and solvents	Small volume
D, D LE	UPE	D (Symmetric): 10 nm, 20 nm, 30 nm, 0.05 µm, 0.1 µm, 0.2 µm D LE (Asymmetric): 3 nm, 5 nm, 10 nm	Filtration of photoresists, thinners and solvents	POU for small- to mid-volume
D PR, D PR-L	UPE	20 nm, 30 nm, 0.05 μm, 0.1 μm, 0.2 μm, 0.5 μm, 1.0 μm	Filtration of photoresists, thinners and solvents	POU for small- to mid-volume

# Optimizer C47

#### SPECIFICATIONS

Materials	Cartridge disk filter	Membane	UPE (hydrophobic)
			UPE Special Cleans type (hydrophobic)
			PCM UPE (hydrophilic)
			PTFE (hydrophobic)
			рр
			Protego <sup>®</sup> polyethylene ion exchange media
		Shell	HDPE
	Holder	Head, bowl, locking ring	HDPE
		O-ring	EPDM or perfluoroelastomer
			Head: AS568-223; bowl: AS568-136
Filtration area	12 cm² (1.86 in²)		
Fitting	Inlet/outlet/vent <sup>1</sup> /4" NPTF		1/4" NPTF
Hold-up volume	8.5 mL		
Maximum operating conditions	Maximum forward differential pressure: EPDM O-ring: 0.28 MPa (2.8 bar, 40 psi) @ 25°C (77°F)		
	Perfluoroelastomer O- 0 21 MPa (21 bar 30 ps	ring: si) a 25°C (77°F)	
	Maximum operating te	mperature:	
	40°C (104°F)		

#### DIMENSIONS



#### **ORDERING INFORMATION**

This information serves as a guide. Please contact your local representative to confirm part numbers.

#### Optimizer C47 Lab Scale Disk Filter Cartridges: part number

C47				
Media CW = UPE PG = PP	<b>Retention rating</b> <b>UPE ONLY</b> AX = 20 nm AZ = 0.05 μm AV = 0.1 μm AG = 0.2 μm	UH= 0.5 μm UA = 1.0 μm <b>PP 0NLY</b> 06 = 0.6 μm 12 = 1.2 μm	25 = 2.5 μm 50 = 5.0 μm 1H = 10.0 μm	•• Quantity UPE AND PP ONLY 30 = 30/pk UPE SPECIAL CLEAN TYPE ONLY 2C = 20/pk

#### Other disk filter cartridges

Part number	Description	Quantity
CWFVC4730	Hydrophobic PTFE 0.1 µm	30/pk
CWMXC472C	PCM UPE 20 nm special clean	20/pk
PRHLC472C	Protego Plus special clean	20/pk

#### Holders

Part number	Description	Quantity
HDPE C47 P1	Perfluoroelastomer	1
HDPE C47 E1	EPDM	1

#### Replacement o-rings

Part number	Description	Quantity
SD1R121Y04	EPDM for bowl (AS548-136)	5
SD1R122Y04	EPDM for head (AS568-223)	5
SD1R123Y04	Perfluoroelastomer for bowl (AS568-136)	1
SD1R124Y04	Perfluoroelastomer for head (AS568-223)	1

### Optimizer V47

#### **SPECIFICATIONS**

Materials	Membrane	UPE (hydrophobic), PCM UPE (hydrophilic), or PTFE (hydrophobic)	
	Supports	Polypropylene non-woven material	
	Housing	Polypropylene	
Filtration area	13.4 cm² (2.08 in²)		
Hold-up volume	1.5 mL		
Maximum operating conditions	Maximum operating pressure: 0.40 MPa (4.0 bar, 58 psi) @ 25°C (77°F)		
Maximum operating temperature: 60°C (140°F)		mperature:	

#### DIMENSIONS



#### **ORDERING INFORMATION**

This information serves as a guide. Please contact your local representative to confirm part numbers.

#### Optimizer V47 Lab Scale Filters: part number



\*\*Available in 20 nm only.

## Optimizer D300 and D600

#### **SPECIFICATIONS**

Materials	Membrane	UPE (hydrophobic)	
	Supports, housing	HDPE	
Filtration area	D300	300 cm² (46.5 in²)	
	D600	600 cm² (93.0 in²)	
Maximum operating conditions	Maximum forward differer 0.34 MPa (3.4 bar, 50 psi) @	Maximum forward differential pressure: 0.34 MPa (3.4 bar, 50 psi) @ 25°C (77°F)	
	Maximum reverse differential pressure: 0.24 MPa (2.4 bar, 35 psi) @ 25°C (77°F)		
	Maximum operating temp 60°C (140°F)	erature:	
Connections	Inlet/outlet	1/4" Compression seal	
	Vent/drain	¹⁄₀" Compression seal	

Entegris recommends that customers change filters at least annually to ensure optimal filtration performance. Routine annual changeout will also reduce the potential of chemical leakage that can result from excessive usage. Our standard warranty period is 1 year (from Entegris ship date).

#### DIMENSIONS





#### **PERFORMANCE DATA**



#### **ORDERING INFORMATION**

This information serves serves as a guide. Please contact your local representative to confirm part numbers.

Optimizer D300 and D600 Disposable Filters: part number



\*\*CWA type only.

### Optimizer D and D LE

#### **SPECIFICATIONS**

Materials	Membrane	D: UPE (hydrophobic, symmetric)	
		D LE: UPE (hydrophobic, asymmetric)	
	Core, housing, supports	HDPE	
Filtration area	10 nm	2600 cm² (2.80 ft²)	
	20 nm	2200 cm <sup>2</sup> (2.37 ft <sup>2</sup> )	
	30 nm	1600 cm² (1.72 ft²)	
	0.05 μm, 0.1 μm, 0.2 μm	1800 cm² (1.94 ft²) short 3100 cm² (3.33 ft²) long	
	3 nm, 5 nm, 10 nm*	2300 cm² (2.47 ft²) short 4000 cm² (4.31 ft²) long	
Maximum operating conditionsMaximum inlet pressure:0.34 MPa (3.4 bar, 50 psi) @ 25°C (77°F)		25°C (77°F)	
	Maximum forward/reverse differential pressure: 0.27 MPa (2.7 bar, 39 psi) @ 25°C (77°F)		
	Maximum operating temperature: 60°C (140°F)		
Connections	Inlet/outlet	1/4" Compression seal	
	Vent/drain	<sup>1</sup> /4" Compression seal	

\*D LE only.

Entegris recommends that customers change filters at least annually to ensure optimal filtration performance. Routine annual changeout will also reduce the potential of chemical leakage that can result from excessive usage. Our standard warranty period is 1 year (from Entegris ship date).

#### DIMENSIONS





#### **PERFORMANCE DATA**



#### **ORDERING INFORMATION**

This information serves as a quide. Please contact your local representative to confirm part numbers.

#### Optimizer D and D LE Disposable Filters: part number



#### Optimizer D and D LE Long Type Filters: part number



\*\*Symmetric only.

### Optimizer D PR and D PR-L

#### **SPECIFICATIONS**

Materials	Membrane	UPE (hydrophobic)
	Core, housing	рр
	Supports	HDPE
Filtration area	D PR 0.02 µm	2200 cm² (2.37 ft²)
	D PR 0.03 µm	1900 cm² (2.05 ft²)
	D PR	1800 cm² (1.94 ft²)
	D PR-L	3600 cm <sup>2</sup> (3.88 ft <sup>2</sup> )
Maximum operating conditions	Maximum inlet pressure: 0.34 MPa (50 psi) @ 25°C (77°C) Maximum forward/reverse differential pressure: 0.27 MPa (40 psi) @ 25°C (77°C)	
	Maximum operating temperature: 60°C (140°C)	

Entegris recommends that customers change filters at least annually to ensure optimal filtration performance. Routine annual changeout will also reduce the potential of chemical leakage that can result from excessive usage. Our standard warranty period is 1 year (from Entegris ship date).

#### DIMENSIONS

#### Optimizer D PR-L Filter



#### **PERFORMANCE DATA**

#### D PR with 1/4" Super Type Pillar Fittings







D PR with 1/4" Compression Fittings







#### **ORDERING INFORMATION**

This information serves as a guide. Not all combinations are available. Please contact your local representative to confirm part numbers.

#### Optimizer D PR Disposable Filters: part number

#### 

#### Optimizer D PR-L Disposable Filters: part number



#### FOR MORE INFORMATION

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