

# Cassettes and Overwraps

*Robust containers and liquid barriers for use in cryogenic applications*

Entegris cassette and overwrap solutions allow you to protect and store your high value product in liquid nitrogen applications. When used with Aramus™ single-use bag assemblies, our cassette and overwrap solutions reduce risk of product loss, contamination, or compromised quality. The aluminum cassettes provide rigidity during handling and greater protection during freezing, storage, and thawing operations. The EVA overwraps provide a liquid barrier between the Aramus bag and liquid nitrogen, and also act as a mode of secondary containment.

Aramus bags are made of a high-grade, gamma stable fluoro-polymer and provide high purity, exceptional compatibility, and increased safety for critical process fluids and final products. The innovative single-layer technology does not contain curing agents, antioxidants, plasticizers, or adhesives, greatly reducing the potential for process fluid contamination.

## APPLICATIONS

- Cell banking for bioreactor intensification
- Stem cell freezing and storage
- Cryogenic storage of bulk drug or intermediates
- Cryogenic product shipment
- Process sampling and archiving



*Aramus 50 mL bag assembly and cassette*

## FEATURES & BENEFITS

<b>Thin, lightweight aluminum construction</b>	Reduces freezing time and saves valuable freezer space
<b>Rigid design</b>	Provides structure for stacking or racking cryogenic bags, reducing handling risk
<b>Standard sizes</b>	Fit in most commercially available freezers and racks  Each cassette and overwrap corresponds with a standard Aramus bag assembly
<b>Customizable Aramus bag assemblies</b>	Allow modified geometries that optimize surface area-to-volume ratios for your application
<b>Low cost</b>	Economical solution for cryogenic shipment and storage

## TECHNICAL INFORMATION

Average cooling rates, from 4°C to -40°C (39°F to -40°F), observed with Aramus bags stored in cassettes. Data on rates shown in use with different freezers prior to storage in LN<sub>2</sub> temperatures.

Bag size	Standard lab freezer -80°C (-112°F)		Controlled plate freezer	
	At maximum fill	At minimum fill	At maximum fill	At minimum fill
20 mL	-1.38°C (-2.49°F)/min	-1.28°C (-2.30°F)/min	-0.72°C (-1.30°F)/min	-0.66°C (-1.19°F)/min
50 mL	-0.97°C (-1.74°F)/min	-1.30°C (-2.34°F)/min	-0.63°C (-1.13°F)/min	-0.77°C (-1.39°F)/min
100 mL	-0.83°C (-1.50°F)/min	-1.31°C (-2.35°F)/min	-0.52°C (-0.94°F)/min	-0.80°C (-1.44°F)/min
250 mL	-0.73°C (-1.31°F)/min	-1.30°C (-2.33°F)/min	-0.65°C (-1.16°F)/min	-0.84°C (-1.52°F)/min
500 mL	-0.53°C (-0.95°F)/min	-1.12°C (-2.02°F)/min	-0.64°C (-1.16°F)/min	-0.90°C (-1.61°F)/min

Cassettes shown to increase robustness by maintaining bag integrity post-LN<sub>2</sub> vapor phase storage. Aramus bags in cassettes were frozen in LN<sub>2</sub> vapor for 24 hours and then subjected to 12" drops three times:

Bag size	Fill volume	Drop test result
20 mL	20 mL	Pass (8/8)
50 mL	50 mL	Pass (8/8)
100 mL	100 mL	Pass (8/8)
250 mL	200 mL	Pass (8/8)
500 mL	350 mL	Pass (8/8)

Note: Entegris has not performed performance-specific testing on 36 ml or 80 ml cassettes, but views performance challenges as low risk due to relative geometries that are similar to larger and smaller cassette sizes. Entegris has performed limited performance-specific testing on 1 L or 2 L cassettes. Please contact your Entegris account manager for more information on these sizes.

## DIMENSIONS

### Cassettes

Dimensions are outer dimensions. Cassette thickness is approximately 0.7 mm.

Part number	Description	Width	Length	Height
SU-FS-0.05-C2	Cassette, Aramus, 20 mL and 50 mL	157 mm (6.2")	203 mm (8.0")	19 mm (0.7")
SU-FS-0.04-C2	Cassette, Aramus, 36 mL	92 mm (3.6")	160 mm (6.3")	11 mm (0.4")
SU-FS-0.08-C2	Cassette, Aramus, 80 mL	152 mm (6.0")	192 mm (7.6")	11 mm (0.4")
SU-FS-0.10-C2	Cassette, Aramus, 100 mL	158 mm (6.2")	213 mm (8.4")	20 mm (0.8")
SU-FS-0.25-C2	Cassette, Aramus, 250 mL	154 mm (6.1")	305 mm (12.0")	20 mm (0.8")
SU-FS-0.50-C2	Cassette, Aramus, 0.5 L	191 mm (7.5")	305 mm (12.0")	23 mm (0.9")
SU-FS-0001-C2	Cassette, Aramus, 1 L	203 mm (8.0")	366 mm (14.4")	24 mm (0.9")
SU-FS-0002-C2	Cassette, Aramus, 2 L	280 mm (11.0")	430 mm (16.9")	24 mm (0.9")

*Note: For Aramus assemblies smaller than 20 mL, multiple configurations are possible.  
For assistance confirming fit, contact your Entegris account manager.*

### Overwraps

Part number	Description	Width	Length
SU-OW-01-14-30-S	Bag, overwrap, EVA, 140 X 300 mm, STER	140 mm (5.5")	300 mm (11.8")
SU-OW-01-09-18-S	Bag, overwrap, EVA, 90 X 180 mm, STER	90 mm (3.5")	180 mm (7.1")
SU-OW-01-17-38-S	Bag, overwrap, EVA, 170 X 380 mm, STER	170 mm (6.7")	380 mm (15.0")
SU-OW-01-20-38-S	Bag, overwrap, EVA, 200 X 380 mm, STER	200 mm (7.9")	380 mm (15.0")
SU-OW-01-28-50-S	Bag, overwrap, EVA, 280 X 500 mm, STER	280 mm (11.0")	500 mm (19.7")

## ORDERING INFORMATION

Aramus bag chamber size	Recommended cassette PN	Minimum order quantity and order increment	Aramus estimated fill volume (in cassette)	Recommended EVA overwrap	Minimum order quantity and order increment
20 mL	SU-FS-0.05-C2	5	20 mL	SU-OW-01-14-30-S	10
36 mL	SU-FS-0.04-C2	5	36 mL	SU-OW-01-09-18-S	10
50 mL	SU-FS-0.05-C2	5	50 mL	SU-OW-01-14-30-S	10
80 mL	SU-FS-0.08-C2	5	80 mL	SU-OW-01-14-30-S	10
100 mL	SU-FS-0.10-C2	5	100 mL	SU-OW-01-14-30-S	10
250 mL	SU-FS-0.25-C2	5	200 mL	SU-OW-01-14-30-S	10
500 mL	SU-FS-0.50-C2	5	350 mL	SU-OW-01-17-38-S	10
1 L	SU-FS-0001-C2	5	—*	SU-OW-01-20-38-S	10
2 L	SU-FS-0002-C2	5	—*	SU-OW-01-28-50-S	10

\*Contact Entegris technical support for additional questions regarding the above information. In addition, contact Entegris to determine the optimal configurations for your specific needs as well as details on instructions for use.

Note: For Aramus assemblies smaller than 20 mL, multiple configurations are possible. Contact your Entegris account manager for help configuring the best solution for your application.

## FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit [entegris.com](https://www.entegris.com) and select the [Contact Us](#) link to find the customer service center nearest you.

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