

Medical Fluid Bags

Performance, processability and collaborative innovation



Medical fluid bags, also known as IV (intravenous) bags, are sterile containers used to deliver fluids, medications, and nutrients directly into a patient's bloodstream. IV bags are essential in hospitals, clinics, emergency care, and even home healthcare, and they play a vital role in patient recovery, stabilization, and ongoing treatment. Made from sterilized, flexible plastic, these bags connect to tubing and a needle or catheter inserted into a vein, allowing for rapid and controlled administration. Depending on the intended use and contents, IV bags can range in size from 50ml to 5L and may be composed of **monolayer** or **multilayer** materials.



Figure 1: Monolayer solution

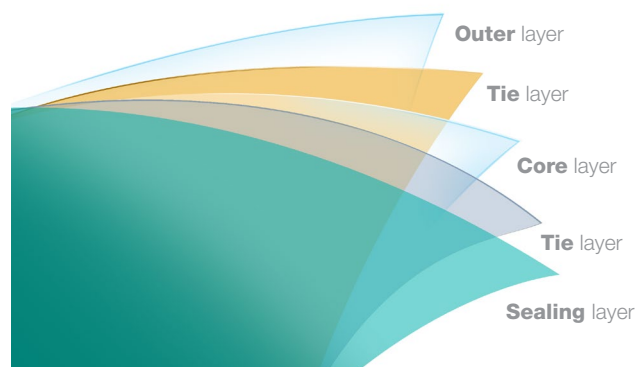


Figure 2: Multilayer solution

Monolayer solutions: A safer alternative to PVC

Historically, PVC has been the dominant material in IV bag production. Dow offers a high-performance alternative with **ELVAX™ Ethylene Vinyl Acetate (EVA) Copolymer Resins**, designed for radio frequency (RF) welding.



- Designed for RF welding with high vinyl acetate (VA) content (at least 15% weight)
- **Very low seal initiation temperature**
- **Transparency**
- **No need for plasticizers**
- **Low temperature performance**
- Excellent **toughness** and **puncture resistance**
- High level of **flexibility**
- Can be sterilized with **gamma radiation** or **ethylene oxide process**
- Available in **low gel versions**, a great choice for medical applications



Figure 1: Monolayer solution

Multilayer solutions: Designed for performance where it matters most

For 3-layer or 5-layer IV bag constructions, Dow offers a range of resins tailored for flexibility, sealing performance, and sterilization compatibility.

Core or Sealing layer options:



- High flexibility for improved drop resistance
- Low temperature performance



- High level of **flexibility**
- **Low seal initiation temperature**
- Excellent **sealing performance**



- Excellent **mechanical properties**
- Designed for **steam sterilization**
- Excellent **sealing performance**



- Excellent **compatibility with PP**
- **Low temperature stability**

Sealing and Tie layer:



- Designed for **radio frequency (RF)** welding with high vinyl acetate (VA) content (at least 15% weight)
- **Very low seal initiation temperature**
- High level of **flexibility**
- **Excellent sealing performance**
- Available in **low gel versions**



- Excellent **adhesion** properties to diverse polar and non-polar materials

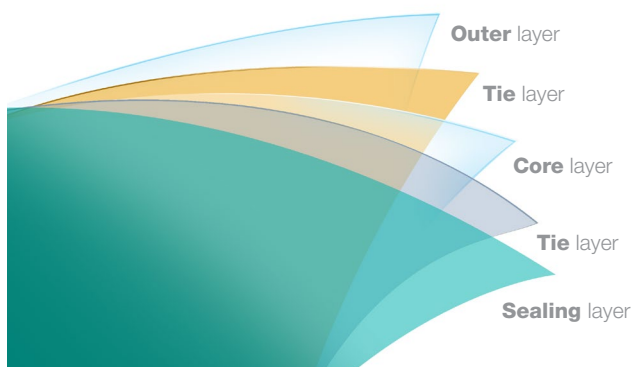


Figure 2: Multilayer solution

packaging solutions by



Table 1: HEALTH+™ and Medical Grade Polymers

Product	Melt Index – 190°C/2.16 kg (g/10 min)*	Density (g/cc)*	Melt Temperature – DSC (°C)*
HEALTH+™ Grades			
ENGAGE™ 8480K HEALTH+™ Polyolefin Elastomer	1.0	0.902	99
ENGAGE™ 030902 HEALTH+™ Polyolefin Elastomer	3.0	0.902	97
Medical Grades			
AFFINITY™ PL 1850G Polyolefin Plastomer	3.0	0.902	98
AFFINITY™ PL 1880G Polyolefin Plastomer	1.0	0.902	99
AFFINITY™ EG 8100G Polyolefin Plastomer	1.0	0.870	55
DOWLEX™ 2035 Polyolefin Plastomer	6.0	0.919	124
DOWLEX™ 2107GC Polyolefin Plastomer	2.3	0.917	124
ELVAX™ 3182-2 Ethylene Vinyl Acetate Copolymer	3.0	0.950	72
ELVAX™ 3165LG Ethylene Vinyl Acetate Copolymer	0.7	0.940	89
ENGAGE™ 8003 Polyolefin Elastomer	1.0	0.885	77
ENGAGE™ 8100 Polyolefin Elastomer	1.0	0.870	60
ENGAGE™ 8150 Polyolefin Elastomer	0.5	0.868	55
ENGAGE™ 8450 Polyolefin Elastomer	3.0	0.902	97
ENGAGE™ 8540 Polyolefin Elastomer	1.0	0.908	104
D5535.00 Olefin Block Copolymer	6.5	0.879	137
BYNEL™ 21E810 Adhesive Resin	2.2	0.940	94
VERSIFY™ 2300 Elastomer	2.0	0.867	66
Standard Grades			
ELVAX™ 3170 Ethylene Vinyl Acetate Copolymer	2.5	0.940	87
ELVAX™ 3175 Ethylene Vinyl Acetate Copolymer	6.0	0.950	73
ELVAX™ 3190 Ethylene Vinyl Acetate Copolymer	2.0	0.950	77

*These are typical properties, not to be construed as specifications.

**The use of these grades is subject to assessment from Dow versus the medical application policy. We recommend contacting your Dow representative for further information.

***Please refer to our Regulatory Data Sheet for the latest Regulatory status of our products

HEALTH+™ and Medical Grade Polymers: What sets them apart

DOW™ HEALTH+™ Polymers are successful polyethylene (PE) resins designed specifically to address the stringent requirements of healthcare-related applications. Dow's standard medical grade polymers are versatile materials used in a wide range of healthcare applications.

To help you choose the right solution, here's a quick comparison of Dow's medical and HEALTH+™ grade offerings:

Medical	HEALTH+™
Notification of change – 6 months	Notification of change – 12 months, Right-to-buy – 12 months
Drug master file	Drug master file
Upon request	USP class VI
Upon request	USP 661.1



Why Dow?

Innovation pioneer across diverse polymers

Dow has been at the forefront of film development for decades and it's a recognized supplier of resins engineered for safety, performance, and regulatory compliance, offering a broad portfolio of PE and functional polymer grades suitable for medical applications.

Deep technical knowledge

We collaborate closely with pharmaceutical companies, toll manufacturers (CDMOs) and equipment manufacturers (OEMs) to co-develop polyolefin film solutions that address demanding clinical and regulatory needs.

Advanced testing and validation

Dow combines resin design with in-house film extrusion testing capabilities for rigorous testing on mechanical, optical, and barrier properties, helping to ensure compliance with the demanding standards of the pharmaceutical industry.

Regulatory and compliance support

Strict medical application policy and dedicated regulatory team ensures our materials address global healthcare standards supporting both internal and external validation.

Let's shape the future of IV packaging together

Dow's medical-grade polymers are designed to help you offer safe, high-performing IV bag solutions with confidence. Whether you're developing monolayer or multilayer structures, our materials and knowhow are here to support your innovation journey.

Visit www.dow.com or contact your Dow representative to learn more.

About Dow

Dow (NYSE: DOW) is one of the world's leading materials science companies, serving customers in high-growth markets such as packaging, infrastructure, mobility and consumer applications. Our global breadth, asset integration and scale, focused innovation, leading business positions and commitment to sustainability enable us to achieve profitable growth and help deliver a sustainable future. We operate manufacturing sites in 30 countries and employ approximately 36,000 people. Dow delivered sales of approximately \$43 billion in 2024. References to Dow or the Company mean Dow Inc. and its subsidiaries. Learn more about us and our ambition to be the most innovative, customer-centric, inclusive and sustainable materials science company in the world by visiting www.dow.com

US		dow.com
Toll Free	800 441 4DOW 989 832 1542	
International		
Europe / Middle East	+ 800 36 94 63 67	
Italy	+ 800 783 825	
Asia / Pacific	+ 800 77 76 77 76 + 60 37 958 3392	
South Africa	+ 800 99 5078	

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