

**ARKEMA**

Healthcare Solutions  
High Performance Polymers



# Technical Polymers – Healthcare Product Portfolio

100% Bio-based

**PEBAX**<sup>®</sup>  
MED

**RILSAN**<sup>®</sup>  
CLEAR MED

**RILSAN**<sup>®</sup>  
MED

**RILSAMID**<sup>®</sup>  
MED

**KYNAR**<sup>®</sup>  
MED

**Thermoplastic  
Elastomers  
(TPE)**

**Transparent  
Polyamides**

**Polyamide 11**

**Polyamide 12**

**Polyvinylidene  
fluoride  
(PVDF)**

**USP CLASS VI AND ISO 10993-4 AND -5 TESTED**



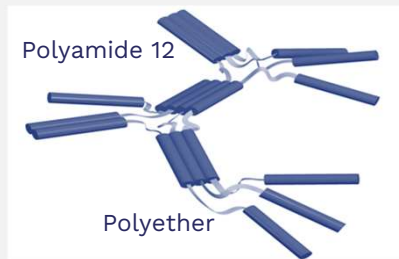
**Chemical resistance**



**Sterilization** (Gamma, ETO, Steam)

## WHAT IS THE CHEMISTRY?

Thermoplastic elastomer made of rigid polyamide and soft polyether



semi-crystalline polymer

**Breathable &** **Antistatic**  
**Medical Pebax® resins available as well**

## WHY ARE THEY USED?



**Lowest hysteresis**  
among TPE's

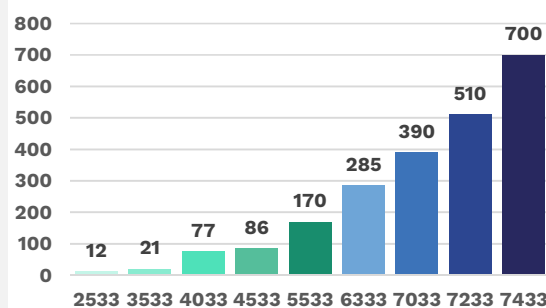


**Kink resistance**  
From soft rubber-like behavior to rigid nylon-like behavior



**Fatigue resistance**  
Best flex fatigue resistance & highest energy return

**Widest Shore D range and Flex Modulus**  
From 25 Shore D to 74 Shore D  
Flexural modulus (Mpa)



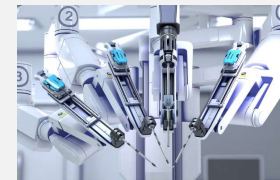
## EXAMPLES OF APPLICATIONS



**Catheters & Balloons**



**Hearing Aids**



**Surgical Robotics**



**Medical Compounds**

## WHAT IS THE CHEMISTRY?

High performance transparent polyamides

2 different medical grades available

RILSAN® CLEAR G170 MED

RILSAN® CLEAR G850 Rnew® MED



Transparent Polyamide 12



Transparent Polyamide 11 (45% bio-based)

BPA Free Materials

## WHY ARE THEY USED?



Transparent

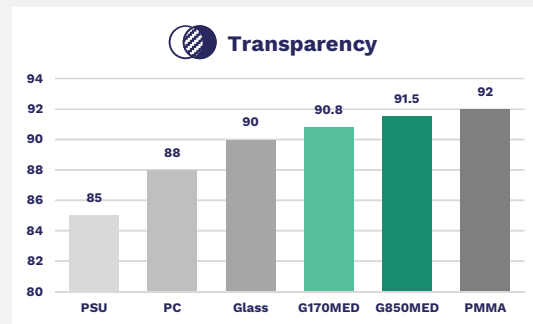


Flexible



Lightweight

Light transmittance close to PMMA



## EXAMPLES OF APPLICATIONS



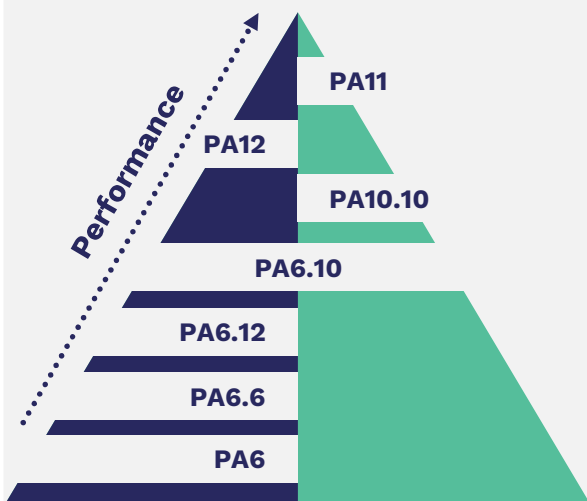
Respiratory & Sleep Apnea Masks



Medical fittings & Connectors

## WHAT IS THE CHEMISTRY?

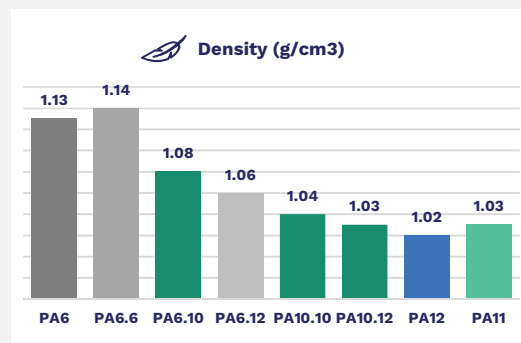
### Polyamide Performance Pyramid



## WHY ARE THEY USED?

-  **Lightweight**
-  **Dimensional stability**
-  **Bio-based (PA11)**

### The Lightest Polyamides



## EXAMPLES OF APPLICATIONS



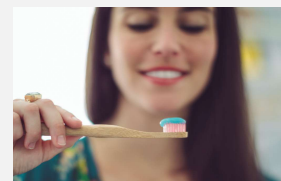
**Catheters & Balloons**



**IV Bags**



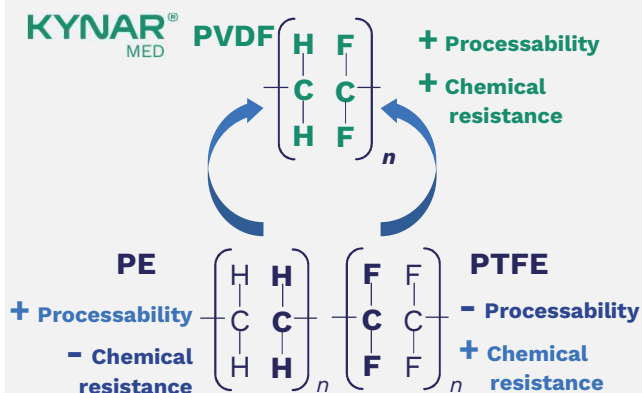
**Transdermal Patches**



**Oral Care**

## WHAT IS THE CHEMISTRY?

Combining Excellent Processability and Chemical Resistance



Contrary to other fluoropolymers, PVDF material can be processed on equipment used for PVC or Polyolefin

## WHY ARE THEY USED?

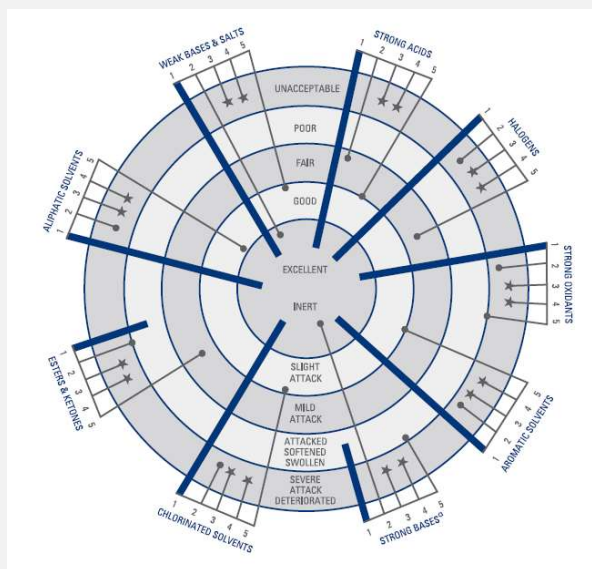


UV Resistant



High Barrier Properties

Outstanding Chemical Resistance



## EXAMPLES OF APPLICATIONS



IV Bags & Drug Delivery



Transdermal Patches & Medical Packaging



Surgical Robotics

# Disclaimer

The statements, technical information and recommendations contained herein are believed to be accurate as of the date hereof. Since the conditions and methods of use of the product and of the information referred to herein are beyond our control, ARKEMA expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information; NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE GOODS DESCRIBED OR THE INFORMATION PROVIDED HEREIN.

The information provided herein relates only to the specific product designated and may not be applicable when such product is used in combination with other materials or in any process. The user should thoroughly test any application before commercialization. Nothing contained herein constitutes a license to practice under any patent and it should not be construed as an inducement to infringe any patent and the user is advised to take appropriate steps to be sure that any proposed use of the product will not result in patent infringement. See SDS for Health & Safety Considerations. Arkema has implemented a Medical Policy regarding the use of Arkema products in Medical Devices applications that are in contact with the body or circulating bodily fluids:  
<http://www.arkema.com/en/social-responsibility/responsible-product-management/medical-device-policy/index.html>

Arkema has designated Medical grades to be used for such Medical Device applications. Products that have not been designated as Medical grades are not authorized by Arkema for use in Medical Device applications that are in contact with the body or circulating bodily fluids. In addition, Arkema strictly prohibits the use of any Arkema products in Medical Device applications that are implanted in the body or in contact with bodily fluids or tissues for greater than 30 days. The Arkema trademarks and the Arkema name shall not be used in conjunction with customers' medical devices, including without limitation, permanent or temporary implantable devices, and customers shall not represent to anyone else, that Arkema allows, endorses or permits the use of Arkema products in such medical devices.

It is the sole responsibility of the manufacturer of the medical device to determine the suitability (including biocompatibility) of all raw materials, products and components, including any medical grade Arkema products, in order to ensure that the final end-use product is safe for its end use; performs or functions as intended; and complies with all applicable legal and regulatory requirements (FDA or other national drug agencies) It is the sole responsibility of the manufacturer of the medical device to conduct all necessary tests and inspections and to evaluate the medical device under actual end-use requirements and to adequately advise and warn purchasers, users, and/or learned intermediaries (such as physicians) of pertinent risks and fulfill any postmarket surveillance obligations. Any decision regarding the appropriateness of a particular Arkema material in a particular medical device should be based on the judgment of the manufacturer, seller, the competent authority, and the treating physician.

Kynar®, Pebax® and Rilsan® are registered trademarks of Arkema.

© Copyright 2021 Arkema – All rights reserved. Do not copy without express permission from Arkema.

Rilsan®, Pebax®, Rnew®, Virtucycle®, Kynar®, Kynar 500®, Kynar Aquatec®, Kepstan®, Orgasol®, FSF® are registered trademarks of Arkema.

Arkema strictly prohibits the use of any polymers, including medical grades, in applications that are implanted in the body or in contact with bodily fluids or tissues for greater than 30 days. Unless Arkema otherwise expressly agrees by written contract, the Arkema trademarks and the Arkema name shall not be used in conjunction with customers' medical devices, including without limitation, permanent or temporary implantable devices, and customers shall not represent to anyone else, that Arkema allows, endorses or permits the use of Arkema products in such medical devices. Further, all implantable medical devices, whether permanent or temporary, carry a risk of adverse consequences. With regard to implantable medical devices, you should not rely upon the judgment of Arkema. Any decision regarding the appropriateness of a particular medical device in a particular medical application or for a specific clinical use should be based upon the judgment of your physician, medical device supplier and the United States Food & Drug Administration and/or the European process of Medical Device notification. Unless otherwise specifically stated by Arkema in writing, Arkema does not perform clinical medical studies on implantable medical devices. Arkema cannot weigh the benefits against the risks of a device and does not offer a medical judgment on the safety or efficacy of use of any Arkema product in a medical device. The statements, technical information and recommendations contained herein are believed to be accurate as of the date hereof. Since the conditions and methods of use of the product and of the information referred to herein are beyond our control, ARKEMA expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information; NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE GOODS DESCRIBED OR THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be applicable when such product is used in combination with other materials or in any process. The user should thoroughly test any application before commercialization. Nothing contained herein constitutes a license to practice under any patent and it should not be construed as an inducement to infringe any patent and the user is advised to take appropriate steps to be sure that any proposed use of the product will not result in patent infringement.