



DuPont™ Appeel® Lidding Sealant Resins

Reduce your manufacturing costs with Appeel® lidding sealant resins



Brand owners require their packaging to perform the way consumers expect – to be easy to open, yet protect the contents against spoilage, leakage, contamination or tampering. DuPont recognizes the continuous increase in consumer expectations, and the fact that converters need to constantly find new ways to meet or exceed their expectations, while still making a profit.

Used during flexible lidding conversion, DuPont™ Appeel® lidding sealant resins not only offer predictable and repeatable peel strength, but also provide a pre-compounded one-bag solution that easily runs in a variety of conversion processes. They are solvent free and don't require the environmental controls associated with solvent-based or lacquer heat seal coatings. Inventories and the number of SKU's can be reduced, as a number of Appeel® resins seal to multiple substrates, leading to less-costly inventory. In addition, there are no blends to be made, ensuring that the resins perform the way they should time after time.

Whether you are running an extrusion coating, cast or blown film line, sealing to PP, PE, PS, PVC, PET, epoxy, Barex® or Aclar®, there is a grade of Appeel® lidding sealant resin that will run in your process, and prove to be cost-effective while meeting the demands of brand owners and consumers.

Appeel® lidding sealant resins have been formulated for versatility with all of this in mind for easy peel applications and are only from DuPont. This brochure describes our current commercial offering of Appeel® grades for lidding applications.

Commercially Available Grades

The Appeel® grades are fully compounded for the most part. In some cases the need may exist to further modify the sealant with processing aids dependent on the chosen extrusion process and final application requirements. This can include additional slip, anti-block and chill roll release additives.

The commercial grades of Appeel® resins are general purpose peel seal resins. They offer excellent peelable seal characteristics to a variety of substrates including PP, PE, PS, PVC, PET, Epoxy, Barex® and Appeel®.

Table 1: Typical Resin Properties of Commercially Available Grades

| Appeel® Grade | MeltFlow Rate (g/10 min) ASTM D1238 | Density (g/cc) ASTM D792 | Melt Point (°C/°F) ASTM D3417 |
|----------------|--|--------------------------|-------------------------------|
| Appeel® 1181 | 8.9 | 0.96 | 75/167 |
| Appeel® 2044 | 2.6 | 0.95 | 79/174 |
| Appeel® 11D542 | 2.1 | 0.92 | 105/221 |
| Appeel® 11D554 | 9.5 | 0.93 | 95/203 |
| Appeel® 20D745 | 7.5 | 0.938 | 92/198 |
| Appeel® 20D751 | 2.0 | 0.94 | 94/201 |
| Appeel® 20D752 | 4.0 | 0.98 | 90/194 |
| Appeel® 20D784 | 9.0 | 0.93 | 98/208 |
| Appeel® 20D828 | 13.0 | 1.02 | 97/207 |
| Appeel® 22D843 | 2.65 | 0.94 | 136/277 |
| Appeel® 20D855 | 7.3 | 1.00 | 92/198 |
| Appeel® 20D867 | 9.1 | 0.94 | 90/194 |
| Appeel® 20D875 | 12.0 | 1.27 | 98/208 |
| Appeel® 45D747 | 4.2 | 0.914 | 112/234 |
| Appeel® 72D727 | 3.5 | 0.94 | 94/201 |
| Appeel® 72D799 | 2.9 | 0.932 | 94/201 |
| Appeel® 72D811 | 6.9 | 0.93 | 94/201 |

The performance of any sealant resin should be evaluated within the context of the application. The sealant is designed to bond to particular substrate(s). Many variables can affect seal strength, including the physical properties of the substrate being sealed to, thickness, flange or surface design, heat seal temperature, dwell time and pressure. The condition and type of the sealing equipment used, such as roller sealers versus platen seal mechanisms, can make a significant difference.

In most cases sealant peel strength is used as a measure of performance. Although this is a convenient test, peel strength is affected not only by substrate adhesion but also by peel angle, separation rate, ambient temperature, tensile and modulus properties of the materials, and often by the time elapsed since the formation of the bond.

If sealant peel strength is used as a measure of sealant performance, it is imperative that peel strength be evaluated not only at the time of initial heat sealing of the lid to the substrate, but throughout the life of the product and under all the conditions to which the sealant will be exposed. Only then does peel strength provide a reliable indication of adhesive performance in the specific application.

Table 2: Typical Heat Seal Characteristics

| Appeel® Grade | APET | CPET | PP | PS | PVC | PE | Barex® | Aclar® | Itself |
|-----------------|------|------|-----|-----|-----|------|--------|--------|--------|
| Appeel® 1181 | ++ | +++ | +++ | ++ | +++ | ++++ | ND | ND | ++++ |
| Appeel® 2044 | ++ | ++ | ++ | ++ | ++ | ++++ | ND | ND | ++++ |
| Appeel® 11D542 | ND | ND | ++ | + | NR | ++ | ND | ND | ++ |
| Appeel® 11D554 | + | +++ | +++ | ++ | NR | ++++ | NR | ++ | ++++ |
| Appeel® 20D745 | +++ | +++ | ++ | +++ | +++ | ++++ | NR | NR | ++++ |
| Appeel® 20D751 | ++ | +++ | ++ | ++ | +++ | ++++ | NR | NR | ++++ |
| Appeel® 20D752 | NR | NR | NR | NR | NR | +++ | NR | NR | +++ |
| Appeel® 20D784 | +++ | +++ | +++ | +++ | +++ | ++++ | NR | NR | ++++ |
| Appeel® 20D828 | +++ | +++ | +++ | +++ | +++ | ++++ | ++ | ++ | ++++ |
| Appeel® 22D843* | NR | NR | +++ | NR | NR | NR | NR | NR | +++ |
| Appeel® 20D855 | +++ | +++ | +++ | +++ | +++ | ++++ | ND | ND | ++++ |
| Appeel® 20D867 | ++ | ++ | ++ | ++ | ++ | ++++ | ND | ND | ++++ |
| Appeel® 20D875 | +++ | +++ | +++ | +++ | +++ | ++++ | ND | ++ | ++++ |
| Appeel® 45D747 | NR | NR | + | NR | NR | + | NR | NR | + |
| Appeel® 72D727 | NR | NR | NR | NR | NR | + | NR | NR | + |
| Appeel® 72D799 | NR | NR | NR | NR | NR | + | NR | NR | + |
| Appeel® 72D811 | NR | NR | NR | NR | NR | + | NR | NR | + |

Peel Strength Legend (lbs./inch) += 1-3, ++ = 2-4, +++ = 4-6, ++++ = Lock Seal, NR = Not Recommended, ND = No Data,

Heat Seal Conditions

Temperatures °C/°F: 121/250, 149/300, 177/350, 204/400 Pressure: 40 psi

Dwell: 1 second Peel Angle: 90° T Structure: 12u PET//40u PE/10u Appeel®

Notes: a) Data is meant for use as a guideline only, and peel values can vary based on source of substrate and its modification; b) Rating based on highest heat seal strength; c) Appeel® 22D843*: Recommend consulting your DuPont representative on use of this product for modification of PP; d) Appeel® 7200 Series: Refer to Table 3 for other olefin resin types these materials are useful heat sealing to in peelable applications.

Table 3: Applications, Attributes and Processes for Commercially Available Grades

| Grade | Key Attributes | Processes | Sealing Substrates | Applications | Direct Food Compliance |
|--------|---|--------------------------------------|---|--|------------------------|
| 1181 | EVA base, low heat seal initiation, high clarity | Extrusion coating & cast film | PP, PVC, PET, PS, PE Aluminum | Lidding for dairy, beverage, snack packaging, some hot fill | Global |
| 2044 | EVA base, low heat seal initiation, high clarity | Blown Film | PP, PVC, PET, PS, PE Aluminum | Lidding for dairy, beverage, snack packaging, some hot fill | Global |
| 11D542 | EVA base, cohesive peel, stress whitens, low C.O.F. | Blown Film | Itself, PE, PP, PS | Easy-peel pouch applications including food and medical. Lidding for HDPE in dairy and dry cereal | Global |
| 11D554 | EVA base, low seal initiation, high clarity | Extrusion coating, cast & blown film | PP, PS, PET, PE, PVC | Lidding for dairy, beverage, snack packaging, hot fill | No FDA |
| 20D745 | EMA base, high thermal process stability, good clarity, low seal initiation | Extrusion coating, cast & blown film | PP, PS, PVC, PET, PE | Lidding for dairy, beverage, snack packaging, hot fill & some micro-wave | Global |
| 20D751 | EMA base, good clarity, low seal initiation | Blown film | PP, PS, PVC, PET, PE | Lidding for dairy, beverage, snack packaging, hotfill & microwave | Global |
| 20D752 | EMA base, cohesive peel, stress whitens, seal strength can be modified | Extrusion coating, cast & blown film | Itself, PE, PP, PS, PET | Easy peel pouch applications including food and medical. Lidding for HDPE in dairy and dry cereal | Global |
| 20D784 | EMA base, high thermal process stability, good clarity, low seal initiation | Extrusion coating, cast & blown film | PP, PET, PS, PVC, PE | Lidding for dairy, beverage, snack packaging, hot fill & micro-wave | Global |
| 20D828 | EMA base, low seal initiation, high burst strength, filament free die cutting | Extrusion coating, cast & blown film | PP, PS, PVC, PET, PE, Aclar®, Barex®, epoxy | Lidding for dairy, beverage, snack packaging, hot fill, micro-wave, can membrane and pharma blisters | No EU |
| 22D843 | PP-modified EMA designed to function as a MB to achieve peelability in PP-based sealant layers. Sealant strength is modified by additon rate into PP. | Extrusion coating, case & blown film | Itself, PP | Pouch or lidding material useful in retortable applications | Global |
| 20D855 | EMA base, low seal initiation, high burst strength, filament free die cutting | Extrusion coating, cast & blown film | PP, PS, PET, PE | Lidding for dairy, beverage, snack packaging, hot fill & micro-wave | Global |
| 20D867 | EMA base, low seal initiation, good seals in the presence of milk solids, good clarity | Extrusion coating, cast & blown film | PP, PET, PS, PVC | Lidding for dairy & beverage | Global |
| 20D875 | EMA base, low seal initiation, high burst strength, filament free die cutting | Extrusion coating, cast & blown film | PP, PS, PET, PVC, Aclar® | Lidding for dairy, beverage and snack packaging | No FDA |
| 22D843 | PP modified EMA designed to function as a MB to achieve peelability in PP based sealant layers | Extrusion coating, cast & blown film | Itself, PP | Pouch or lidding material for retortable applications | Global |

Details of Food Regulation Compliance conditions for each grade and country can be requested by contacting your local DuPont office.

Table 3: Applications, Attributes and Processes for Commercially Available Grades (cont'd.)

| Grade | Key Attributes | Processes | Sealing Substrates | Applications | Direct Food Compliance |
|--------|--|-------------------|---|---|------------------------|
| 45D747 | Modified Polyolefin for easy peel applications | Blown & Cast Film | Itself, PE | Easy Peel Pouch or lidding | Global |
| 72D727 | Modified EVA designed to peel from itself, PE, Ionomer, ACR, EVA and EMA sealant types | Blown & Cast Film | Itself, PE, Ionomer, ACR, EVA and EMA sealant types | Easy-peel applications for processed meat, cheese and medical. Easy-peel sealant layer for pouches, capping and forming webs, HDPE lidding. | Global |
| 72D799 | Modified EVA designed to peel from itself, PE, Ionomer, ACR, EVA and EMA sealant types | Blown & Cast Film | Itself, PE, Ionomer, ACR, EVA and EMA sealant types | Easy-peel applications for processed meat, cheese and medical. Easy-peel sealant layer for pouches, capping and forming webs, HDPE lidding. | Global |
| 72D811 | Modified EVA designed to peel from itself, PE, Ionomer, ACR, EVA and EMA sealant types | Blown & Cast Film | Itself, PE, Ionomer, ACR, EVA and EMA sealant types | Easy-peel applications for processed meat, cheese and medical. Easy-peel sealant layer for pouches, capping and forming webs, HDPE lidding. | Global |

Details of Food Regulation Compliance conditions for each grade and country can be requested by contacting your local DuPont office.

Commercially Available of Grades by Region

| | Brief Description | Availability | |
|----------------|---------------------------|--------------|------|
| | | NA/LA/AP | EMEA |
| Appeel® 1181 | Modified EVA resin | √ | |
| Appeel® 2044 | Modified EVA resin | √ | |
| Appeel® 11D542 | Modified EVA resin | √ | |
| Appeel® 11D554 | Modified EVA resin | √ | √ |
| Appeel® 11D625 | | | |
| Appeel® 20D745 | Modified EMA resin | √ | √ |
| Appeel® 20D751 | Modified EMA resin | √ | √ |
| Appeel® 20D752 | Modified EMA resin | √ | √ |
| Appeel® 20D784 | Modified EMA resin | √ | √ |
| Appeel® 20D828 | Modified EMA resin | √ | |
| Appeel® 20D843 | Modified EMA resin | √ | √ |
| Appeel® 20D855 | Modified EMA resin | √ | √ |
| Appeel® 20D867 | Modified EMA resin | √ | √ |
| Appeel® 20D875 | Modified EVA resin | | √ |
| Appeel® 45D747 | Modified Polyolefin resin | √ | |
| Appeel® 72D727 | Modified EVA resin | √ | |
| Appeel® 72D799 | Modified EVA resin | √ | √ |
| Appeel® 72D811 | Modified EMA resin | √ | √ |

NA/LA = North and Latin America; EMEA = Europe, Middle East, Africa

For Americas

Terrance D. Kendig
DuPont Packaging & Industrial Polymers
Chestnut Run Labs, Bldg 712/253
4417 Lancaster Pike
Wilmington, DE 19805
Tel: 302/999-4327
Email: terrance.d.kendig@usa.dupont.com

For Europe, Middle East and Africa

Mauri Azagury
DuPont Iberica, S.A.,
Avda. Diagonal, 561,
ES-08029 Barcelona, Spain
Tel: +34 93 227 6077
Fax: +34 93 227 6207
E-mail: mauri.azagury@esp.dupont.com

For Asia Pacific

Ju Il Cha
DuPont Korea
4th Floor, Asia Tower
726 Yeoksam-dong, Kangnam-ku
Seoul 135-719, Korea
Phone: +82 2 2222 5251
Fax: +82 2 2222 5475
E-mail: ju-il.cha@kor.dupont.com

For more information: www.appeel.dupont.com

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