

## Splicing tape solutions for separator film, anode and cathode production

Tailor-made solutions for battery splicing

# Your partner for reliable splicing solutions

Increasing requirements on product quality and production efficiency call for a reliable partner during battery cell manufacturing processes. With over 125 years of experience as a global supplier of adhesive solutions and as the inventors of tesa<sup>®</sup> EasySplice for integrated flying splice applications, we are your reliable partner. In order to achieve the desired levels of efficiency, it is essential that production machines operate at the highest possible speed with no splice failures and downtime.



#### Increased efficiency during battery cell production process

The production of batteries is a complex process involving several steps. At tesa, we are highly experienced with processing a wide range of materials such as films and coated metal foils. Our tapes are manufactured with premium quality and sustainable materials to ensure optimal splice performance and reliability in your separator film production, electrode coating, calendaring, notching, and stacking.



### Fast and easy preparation with tesa splicing solutions



#### Save time

Fast and efficient manual or robotic preparation of splicing tape tailored to your process requirements.

#### Accelerate high-end production:

Run even difficult to splice substrates at high speeds.



#### **Reduce failures**

Higher splice performance means less costly failures. tesa's splicing solutions ensure safe closure of reels during acceleration and precise opening after contact.



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#### tesa<sup>®</sup> EasySplice FilmLine

With the invention of tesa<sup>®</sup> EasySplice, we revolutionized paper and film production as well as converting industry processes. Reliable splicing at the highest speeds combined with easy and fast job preparation was made possible, resulting in maximized process efficiency. Our tesa<sup>®</sup> EasySplice FilmLine assortment is specifically developed for film and battery cell manufacturers. The combination of tailored contact adhesives, reliable splitting strip solutions, and distinct product backings provides outstanding splice performance even on critical non-polar film materials.





**Underneath** Apply the tape under the top layer of the film reel. Then remove the upper part of the liner.



**On top** Attach the top layer onto the exposed adhesive of the tape.



**Remove** Tear off the excess film following the line of the remaining section of the liner.



**Finish** Before accelerating the reel carefully remove the lower part of the liner.



#### tesa® EasySplice FilmLine assortment

| Product                                    | Backing | Color | Tack | <b>Thickness w/o</b><br>liner [µm/mil] | Adhesion | Shear<br>resistance | Hand tearable | Tensile<br>strength [N/cm] |
|--|---------|-------|------|--|----------|---------------------|---------------|----------------------------|
| tesa® EasySplice 51918<br>FilmLine Black S | PET     | •     | •••  | 105/4.1                                | •••      |                     | No            | 70                         |
| tesa® EasySplice 51938<br>FilmLine Black   | PETP    | •     |      | 105/4.1                                |          |                     | No            | 70                         |

#### Complementary tapes









|                               | Tape description             | Thickness [µm/mil] | Adhesive         | Backing                   | Color                       |
|-------------------------------|------------------------------|--------------------|------------------|---------------------------|-----------------------------|
| 1 End tabbing                 |                              |                    |                  |                           |                             |
| tesa <sup>®</sup> 4124        | Single-sided tape            | 65/2.6             | Natural rubber   | PVC                       | $\bullet \bigcirc \bigcirc$ |
| tesa <sup>®</sup> 60404       | Colored single-sided tape    | 67/2.6             | Natural rubber   | PVC                       |                             |
| 2 Failure flagging            |                              |                    |                  |                           |                             |
| tesa <sup>®</sup> 60404       | Colored single-sided tape    | 67/2.6             | Natural rubber   | PVC                       |                             |
| 3 Core Starting               |                              |                    |                  |                           |                             |
| tesa <sup>®</sup> 51194       | Splittable double-sided tape | 120/4.7            | Synthetic rubber | Splittable paper          | •                           |
| tesa <sup>®</sup> 60404       | Colored single-sided tape    | 67/2.6             | Natural rubber   | PVC                       |                             |
| tesa <sup>®</sup> 64620       | Double-sided tape            | 185/7.3            | Synthetic rubber | PP                        | 0                           |
| tesa® <b>52307</b>            | Double-sided tape            | 70/2.8             | Acrylic          | PVC                       | $\bigcirc$                  |
| tesa® <b>51904</b>            | Double-sided tape            | 110/4.3            | Synthetic rubber | Non-woven                 |                             |
| tesa® <b>4985</b>             | Transfer tape                | 50/2 Acrylic       |                  | None                      | $\bigcirc$                  |
| 4 Roller wrapping and         | belting                      |                    |                  |                           |                             |
| tesa®<br>Printer´s Friend 486 | Embossed surface             | 620/24.4           | Natural rubber   | Silicone-<br>coated cloth | •                           |
| tesa®<br>Printer´s Friend 456 | Smooth surface               | 380/15             | Natural rubber   | Silicone-<br>coated cloth | •                           |
| tesa® <b>4820</b>             | Single-sided PTFE tape       | 100/3.9            | Silicone         | PTFE                      |                             |
| tesa® 4830                    | Single-sided PTFE tape       | 160/6.3            | Silicone         | PTFE                      |                             |

#### Our splicing tape product portfolio

We offer functional double-sided and singe-sided tapes as well as a full range of process tapes tailored for splicing applications in battery and components manufacturing.

- Suited tapes for separator film, anode and cathode material
- Manual and automated splicing applications
- Complementary tapes for core starting and end-tabbing
- Roll-to-roll process know-how to support process
   optimization



Butt splice

Overlapped splice

#### Our full range of process tapes for the production process

| Application                 | Flying splice  | Flying splice/<br>Static splice  | Static splice  | Static splice  | Splitting labels  | Aluminum<br>detection labels  | Black detection<br>labels  |
|-----------------------------|--|--|--|--|---|---|--|
| Product                     | tesa® <b>51904</b>   | tesa <sup>®</sup> 4200   | tesa® 61127  | tesa® 4137   | tesa® <b>54242</b>  | tesa® <b>51003</b>  | tesa® <b>51005</b>   |
| Tape<br>description         | Double-sided tape  | Double-sided tape  | Single-sided tape  | Single-sided tape  | Single-sided die<br>cut   | Aluminum label for inductive detection                                    | Black label for optical detection                                    |
| Main<br>product<br>features | <ul> <li>Paper backing</li> <li>High tack</li> <li>synthetic<br/>rubber adhesive</li> <li>Pink color</li> </ul>  | <ul> <li>PET Backing</li> <li>High tack silicone<br/>adhesive</li> <li>High temperature<br/>resistance</li> <li>Red color</li> </ul>                     | <ul> <li>PET Backing</li> <li>High tack silicone<br/>adhesive</li> <li>High temperature<br/>resistance</li> <li>Black color</li> </ul>                   | <ul> <li>Metalized<br/>backing</li> <li>High shear<br/>strength</li> <li>High temperature<br/>and ageing<br/>resistance</li> </ul> | <ul> <li>High adhesion<br/>on various film<br/>materials</li> <li>Perforated<br/>breaking point</li> <li>Die cut on roll</li> </ul> | <ul> <li>Aluminized paper<br/>backing</li> <li>Die cut on roll</li> </ul> | <ul> <li>Black paper<br/>backing</li> <li>Die cut on roll</li> </ul> |
| Customer<br>benefits        | <ul> <li>Secure splice<br/>performance on<br/>standard non-<br/>polar substrates,<br/>even at high<br/>speeds</li> <li>No need for<br/>scissors or<br/>cutters</li> <li>Good splice<br/>detection</li> </ul> | <ul> <li>Best splice<br/>performance<br/>on various<br/>siliconized<br/>substrates even<br/>at high speeds</li> <li>Good splice<br/>detection</li> </ul> | <ul> <li>Best splice<br/>performance<br/>on various<br/>siliconized<br/>substrates even<br/>at high speeds</li> <li>Good splice<br/>detection</li> </ul> | <ul> <li>Good splice<br/>detection by<br/>light and heat<br/>radiation</li> </ul>  | Easy top sheet<br>fixation<br>for conventional<br>flying splice   | Good splice<br>detection  | Good splice<br>detection   |

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#### Certifications

Our company is focused on international quality, environmental, and occupational safety standards.

Please find more information regarding our certifications at: www.tesa.com/certifications

tesa SE Phone: +49 40 88899 0 tesa.com/company/locations

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