



Synthetic Fibre Division (GS)

Aktuelle Entwicklungen der REICOFIL[®] Meltblown Technologie

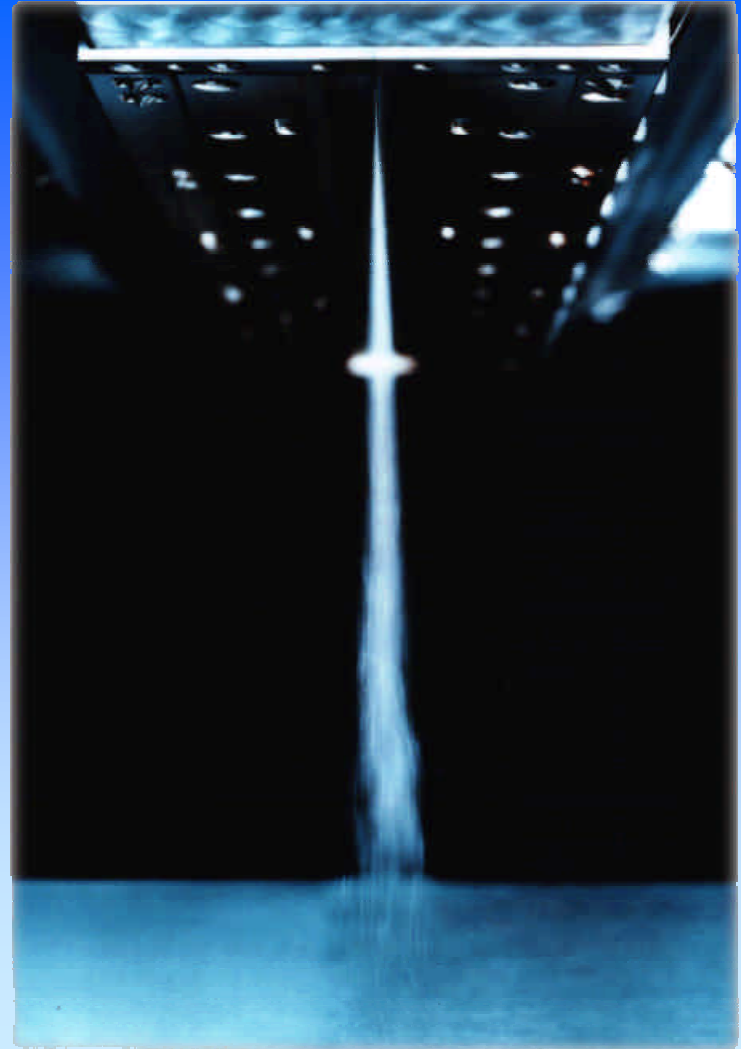
**Axel Becker,
Dr. Peter Schlag**





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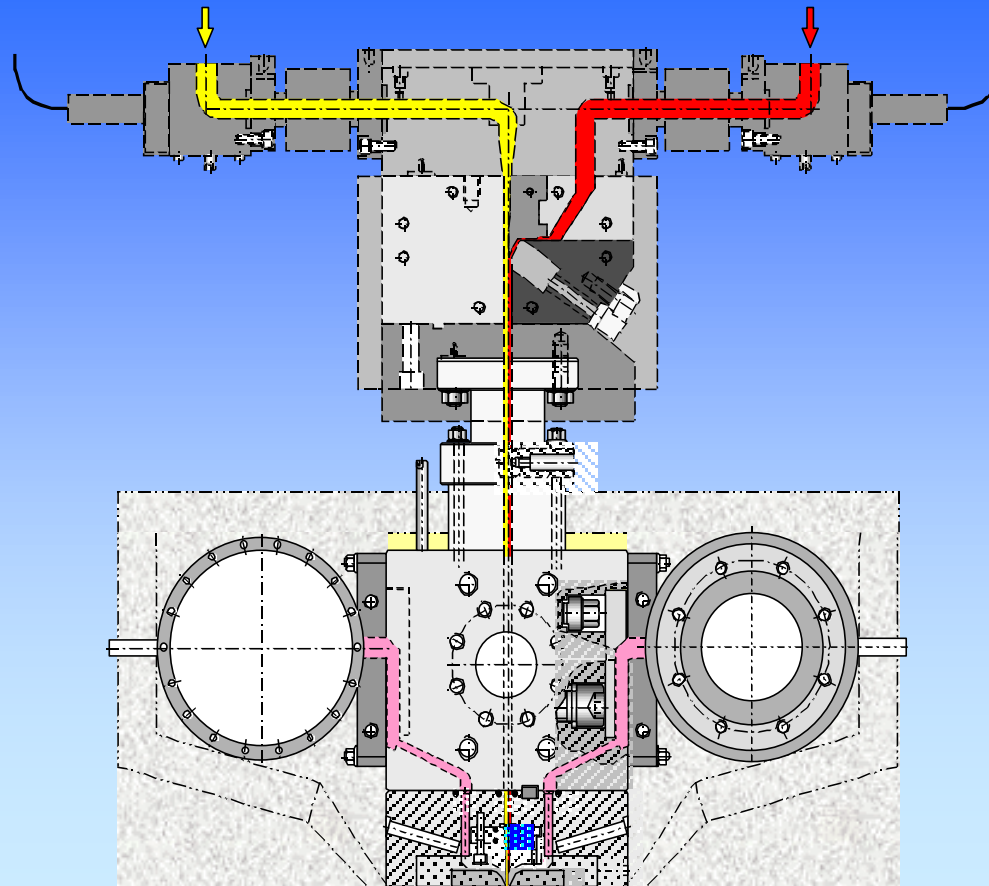
REICOFIL[®] Meltblown Die in operation





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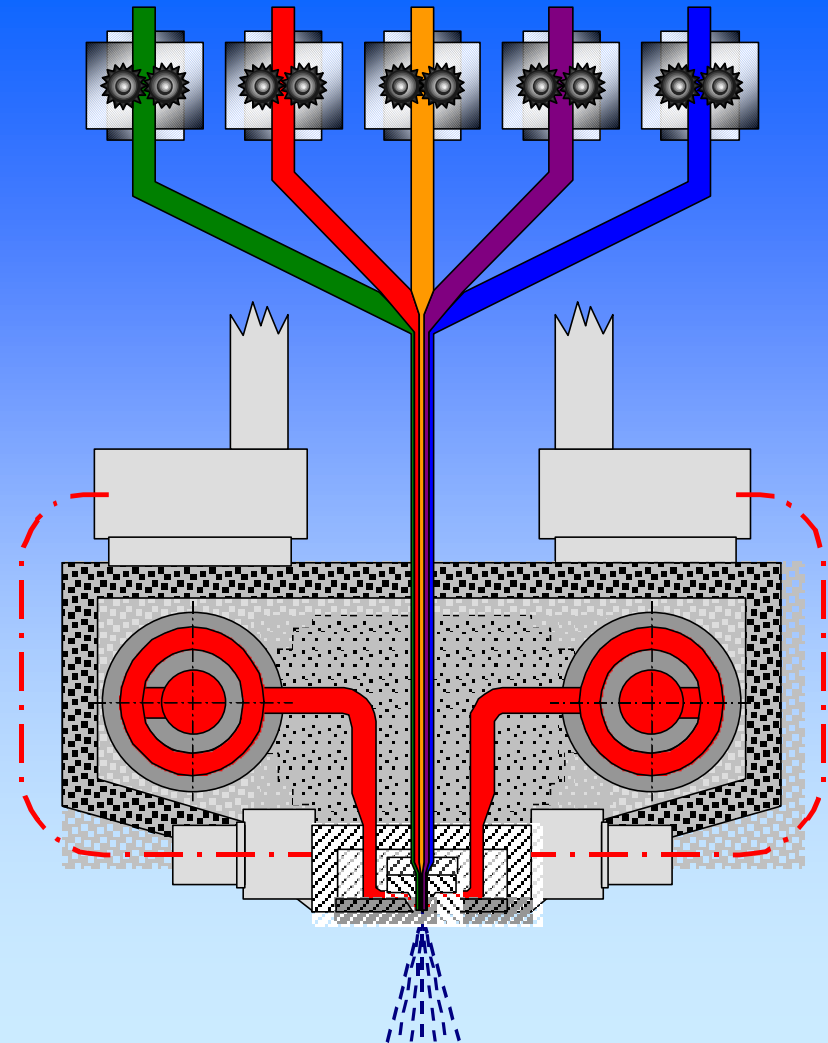
MELTBLOWN - BICO Cross section of a side-by-side MB die





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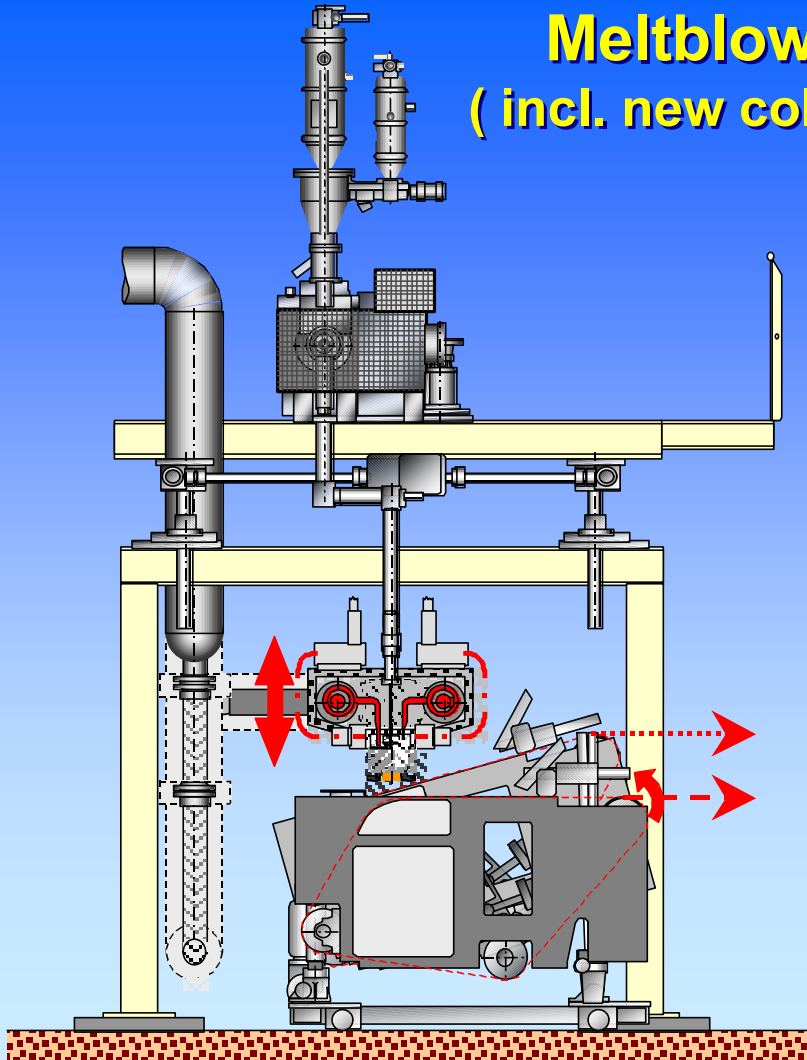
REICOFIL® Multico meltblown technology





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Meltblown – Beam (incl. new collector design)



OPTIONS :

- suction-device against fiber fly
- electrostatic charging of fiber-curtain
- injection of liquids and powders
- swivelling die-head for customised fabric-width





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Bico Filament Structures



Side by Side
(left / right)

50:50



Sheath / Core

20 : 80



16 - Segment Pie

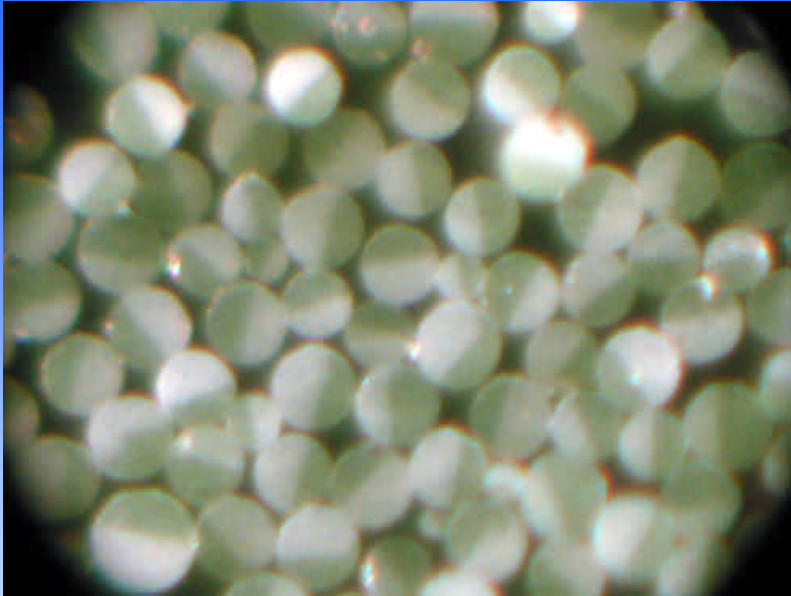
50:50





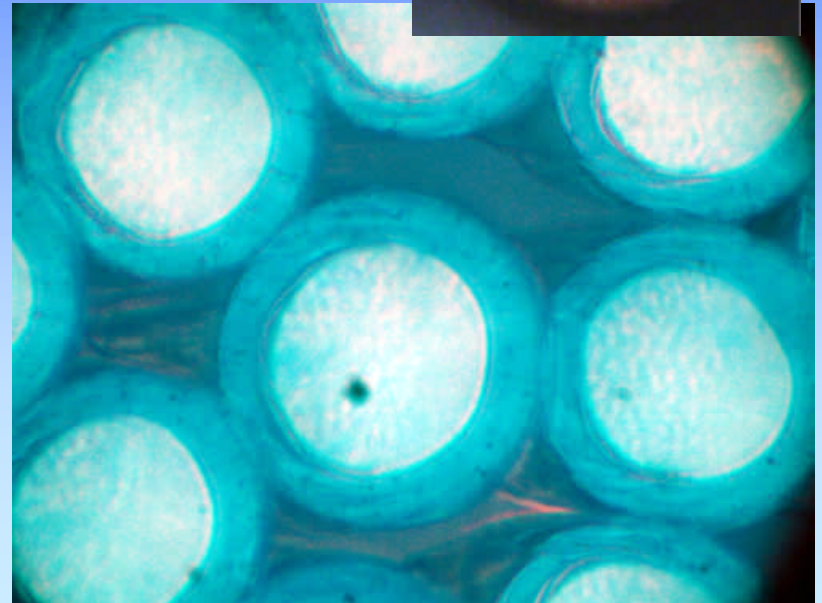
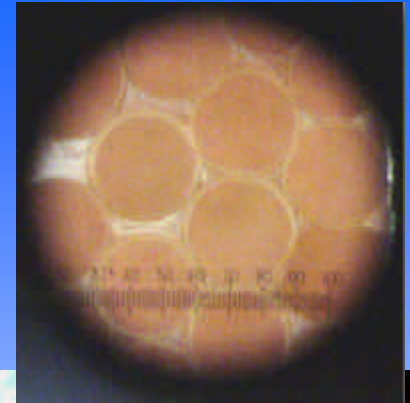
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Bico filament cross-sections



Side by Side
(left / right) 50:50

Sheath / Core
10 : 90



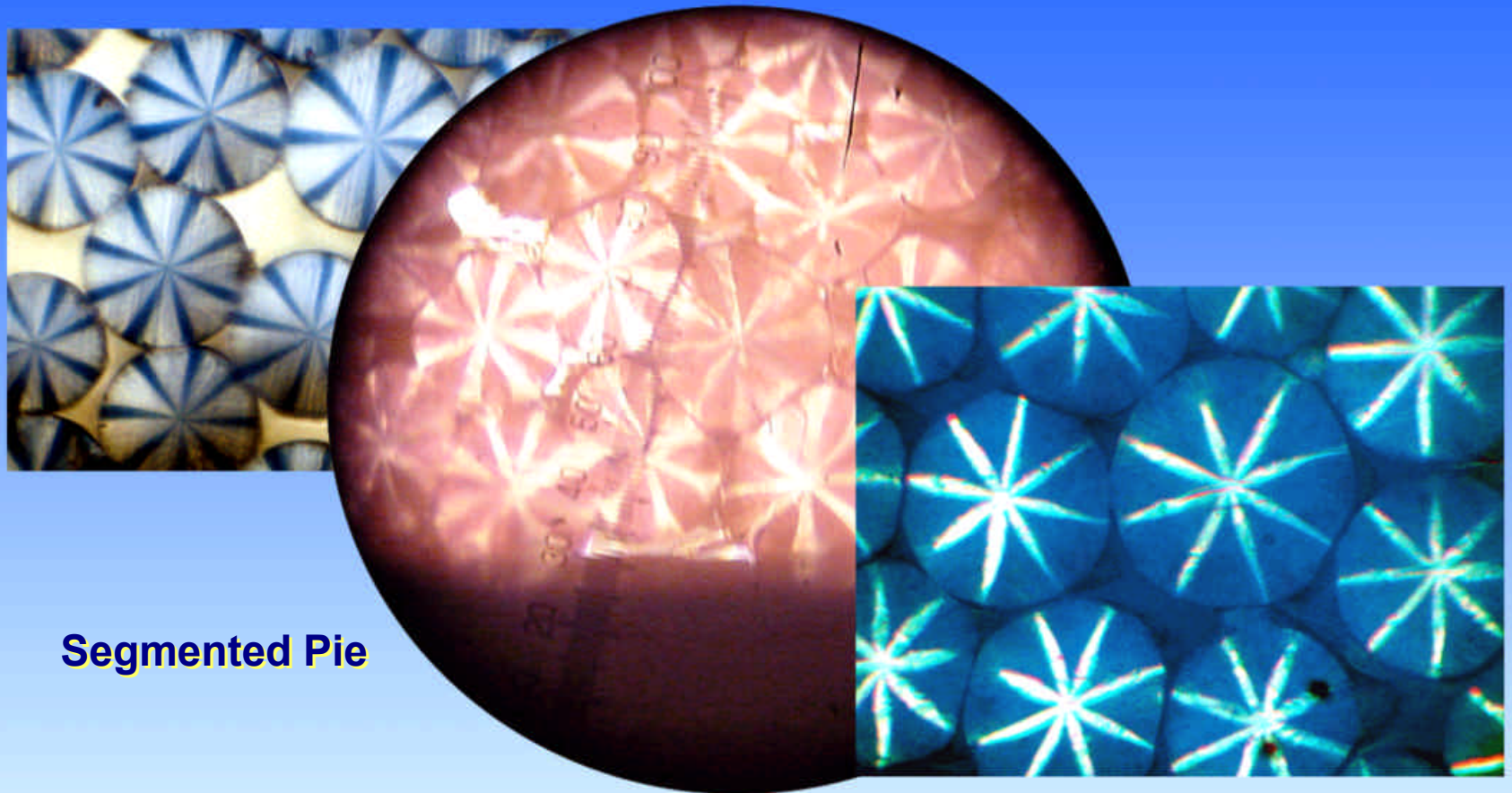
Sheath / Core
20 : 80





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Bico filament cross-sections



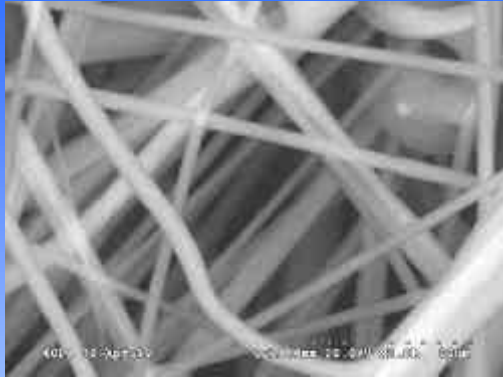
Segmented Pie





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SEM Photographs of Mono-component Meltblown Fibers



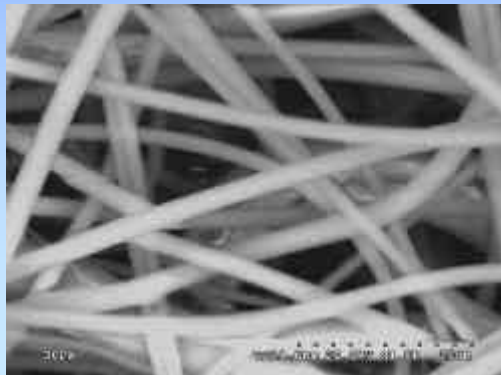
100% PP (Exxon 3546G)



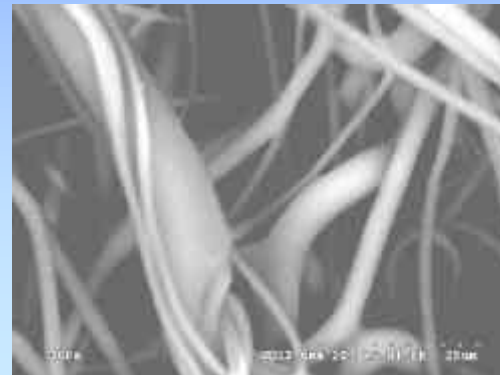
100% PE (Dow 6831 A)



100% PET (Wellman)



100% PBT (Ticona Celanex 1300A)



100% PA-6 (BASF B-3)



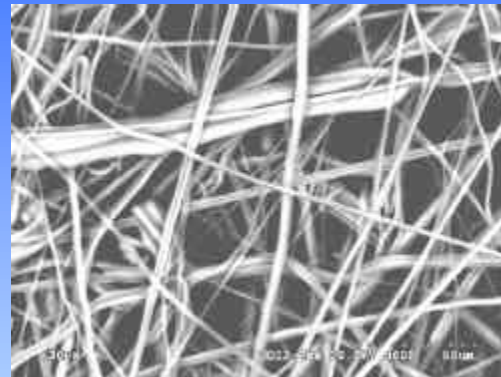


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SEM Photographs of Bi-component Meltblown Fibers



**50%PET/50%PP
(Wellman/Exxon 3445)**



**50%PBT/50%PP
(Ticona Celanex 1300A/
Exxon 3546G)**



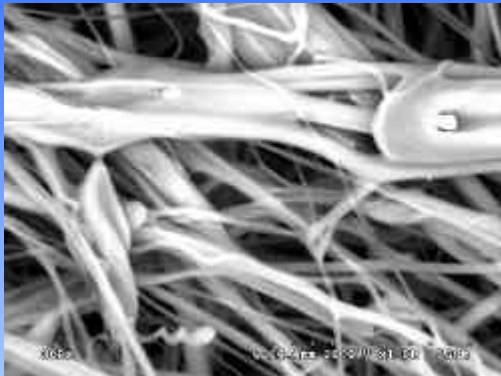
**75%PBT/25%PP
(Ticona Celanex 1300A/
Exxon 3546G)**



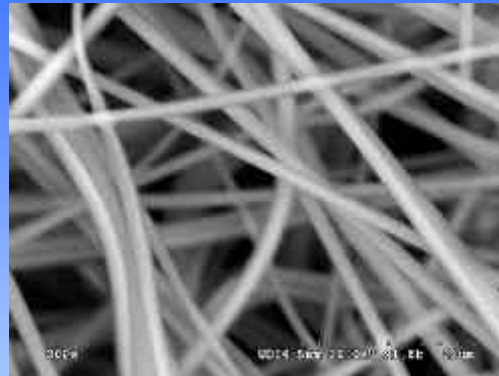


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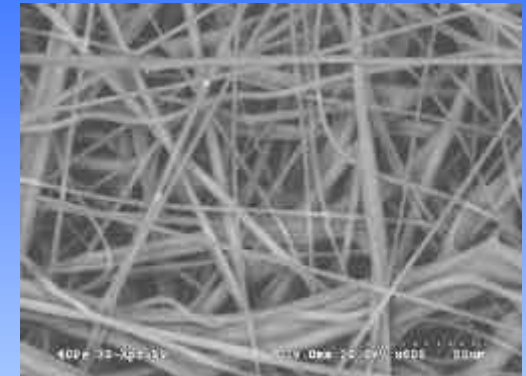
SEM Photographs of Bi-component Meltblown Fibers



**75%PE/25%PA-6
(Dow 6831A/BASF B-3)**



**75% PBT/25% PE
(Ticona Celanex 1300A/
Dow 6831)**



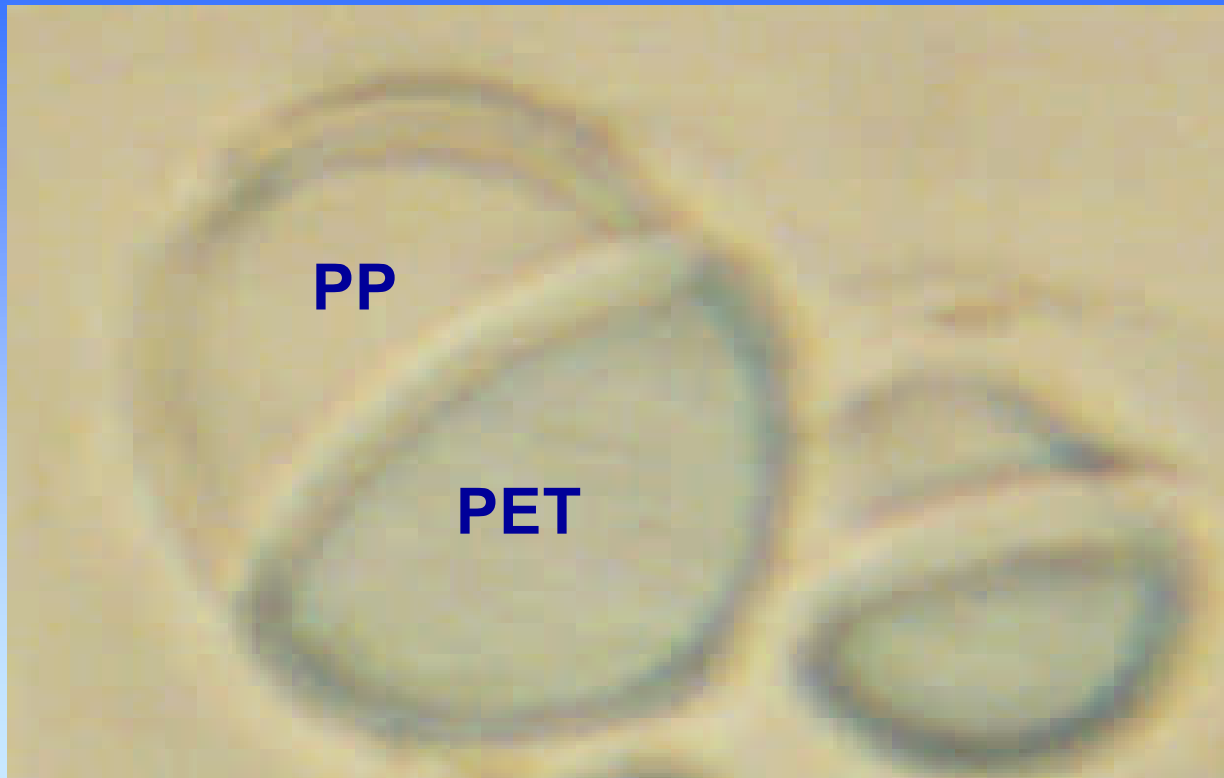
**75%PP/25%PE
(Exxon 3546G/
Dow 6831A)**





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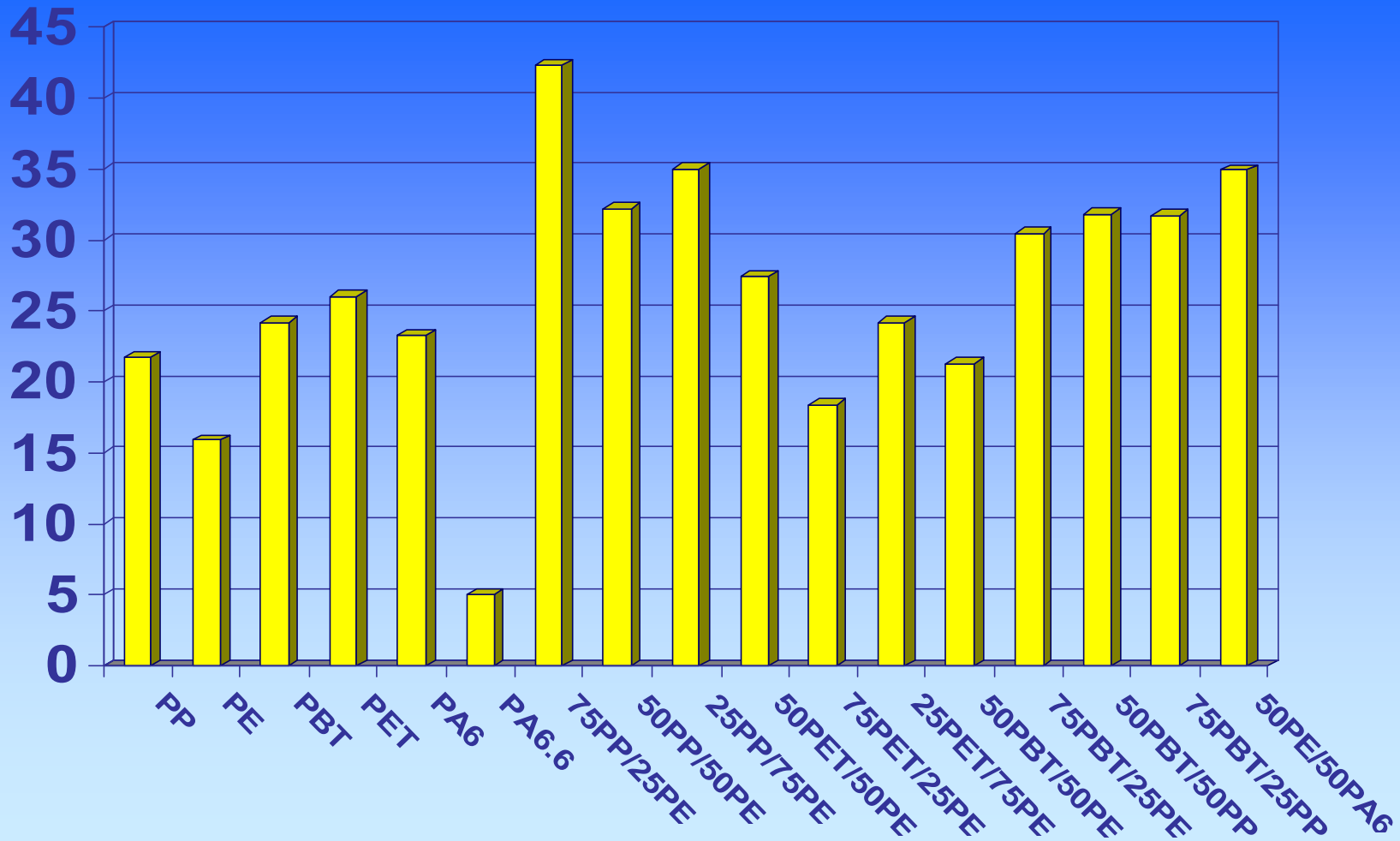
Cross-sectional Photograph of Bi-component Meltblown Fibers (50% PET/50% PP)





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Filtration Efficiency (%)





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Advantages of the REICOFIL[®] MB - System

Largest width :

- single MB-Line : 3200 mm
- MB-System in a SMMS-Line : 4200 mm

Single MB-Line : Biofil

- Line width : 1600 mm
- for very sensitive pharma products with high quality specifications like blood filters, (material PBT)
 - mass : 50 g/m², mass distribution CV < 3 %
 - thickness > 0.5 mm; CV < 5 %
 - air permeability 250 l / (m²/s) CV < 8 %
 - air permeability / thickness (\bar{P} value for porosity) < 500 l / (m² s mm) CV < 12 %





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Conclusion

- Mono- and bi-component meltblown fiber webs of fiber diameter from 1.64 to 2.85 mm have been produced on the REICOFIL[®] Bico MB Line using various polymers at production rate of 0.55-1.1 g/hole/min (20-40 kg/hr).
- The average weight uniformity was 95.8% and the bico ratio uniformity determined by DSC was over 80%.
- Side-by-side bico meltblown fibers showed non-round and more twisted or crimped structure.





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Conclusion (Cont.)

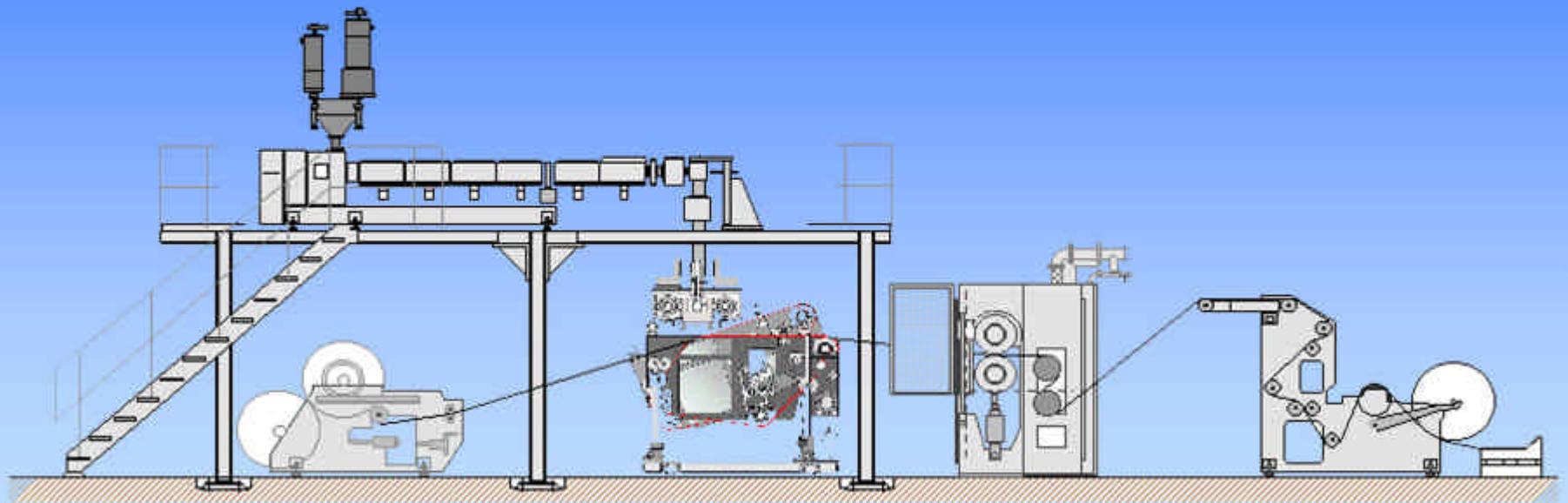
- The bico PP/PE and PP/PBT webs showed enhanced barrier properties.
- The preliminary work showed that RSM is an efficient and effective method for meltblown process optimization and product development.

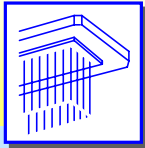




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REICOFIL Meltblown Line





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SSMMSS - Composite Line (800 m/min, 840 kg/hm)

