

**Open Innovation Platform for
Materials & Coating Research**

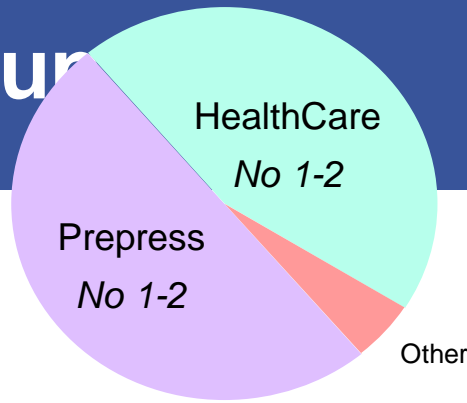


Extend your Reach

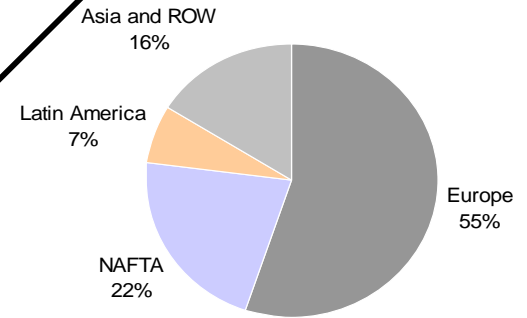
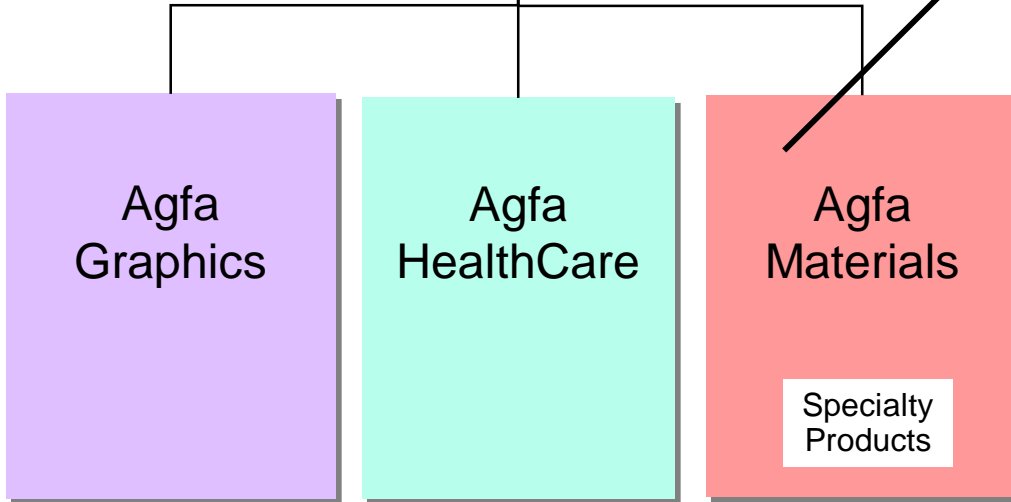
**Advanced Chemical and Physical Analytics
Joint Development Projects**



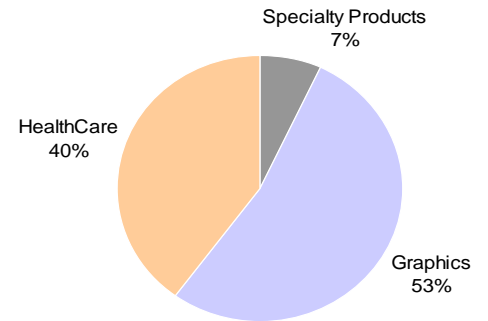
Agfa-Gevaert Group



Agfa-Gevaert Group



Sales by region

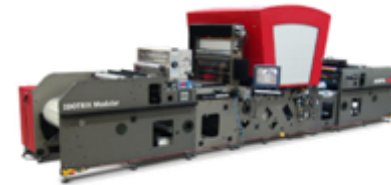


Sales per business group

Agfa-Materials



- Film, chemicals, inks for all BU's
- Specialty Products
 - Functional Foils
 - Synthetic Paper, Identity & Security, backsheet for
 - Printed Electronics
 - PCB Films & Inks, conductive coatings, conductive Inks
 - Industrial Inks
 - Classic Film
 - NDT-, Aerial-, Micro- and Ciné-films
- R&D :
 - Materials Technology Centre (MTC)
 - Open R&D platform, accessible for all BU's and for third parties
 - Agfa-Labs ∈ MTC

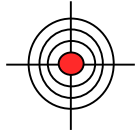


R&D : Materials Technology Centre



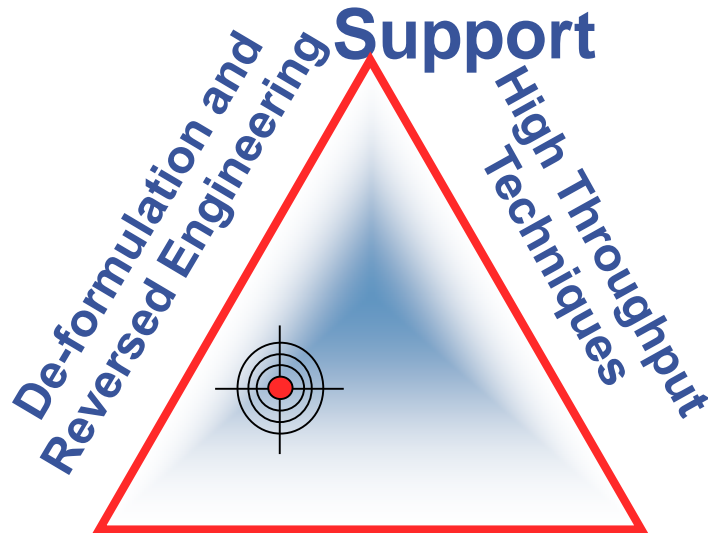
- Molecular Ingredients
- Sourcing, design and synthesis
 - Functional polymers
 - Dispersants
 - Dyes
 - Pigments
 - Functional ingredients
- Structure – activity relation
- Formulations and dispersions
- Formulation discovery
- Structure – activity relation
- Dispersion technology
- Process scale-up
- Pilot Lab
- Reaction calorimetry
- REACH
- Analytical competences
- Organic and Inorganic Analysis
- Colloids, Surfaces and Particles
- Thermal Analysis
- Microscopy and Material Optics
- High Throughput Techniques and Mechanical Testing
- Climate Testing and Weathering

Agfa-Labs : Open Innovation Platform for Materials & Coating Research



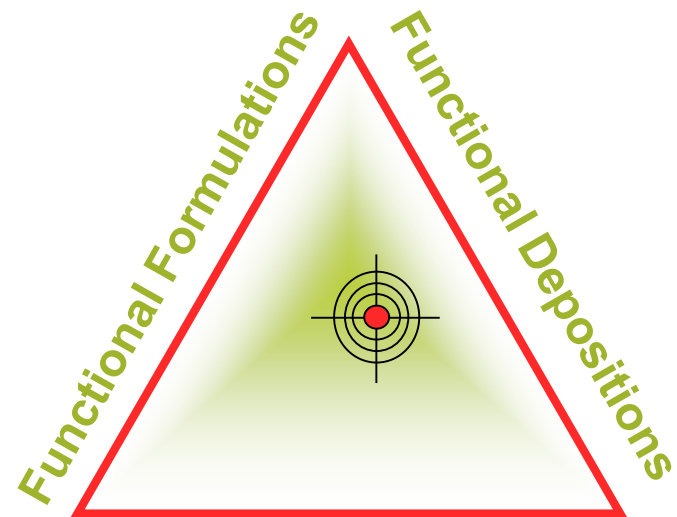
Address your request to the Open Innovation platform at Agfa-Labs:

Ad-hoc or Repeated Support



Advanced Analysis and Troubleshooting

Joint Projects



Functional Chemicals

Technologies and knowledge available



Technology	Kodak	XRCC	AGFA
Integration Development & Production	☆	☆	☆
Scale-up Chemistry	☆	☆	☆
Scale-up formulation	☆	☆	☆
Scale-up coating	☆	☆	☆
Milling and particle processing		☆	☆
Broad expertise in wide range of chemistry	☆	☆	☆
Strong Analytics	☆	☆	☆
ISO 9001	☆		☆
GMP			
Statistical process control	☆		☆
6 sigma		☆	☆
Stage-Gate concept	☆		
Management of change	☆		☆

R&D laboratories



■ 3600 m² **Analytical Labs**

- Organic and Inorganic Analysis
- Colloids, Surfaces and Particles
- Thermal Analysis
- Microscopy and Material Optics
- Mechanical Testing
- Climate Testing and Weathering

■ 3000 m² **Chemical Labs**

- Sourcing
- Polymers
- Dye and Pigments
- Dispersions and Formulations
- Upscaling & Pilot Lab

■ 3600 m² **digital printing and coating labs**

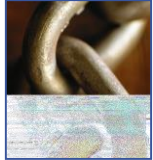
- Inkjet-, screen- and offset printing from lab to pilot scale
 - High Throughput lab for fast screening of printing and coating
 - Solution based coating lab from lab to pilot scale and industrial scale
-
- 173 Co-workers (= 153 FTE)
 - 39 Researchers (PhD level)
 - 106 Lab-Assistants
 - 28 Blue Collar

Types of infrastructure to be shared

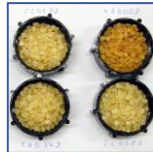


1. Advanced analytical services
2. Fine chemicals synthesis
3. Dispersion formulation & production
4. Polyester synthesis pilot plant & polyester base production
5. Coating facilities

1. Advanced Analytical Services



Materials Analysis and Testing



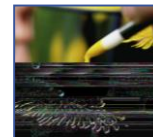
Contaminant Identification



Trouble shooting and Failure Analysis



High Throughput Analytics



Deformulation and Re-Engineering

2. Fine Chemicals



Molecular ingredients

Sourcing or synthesis based on desired structure-activity relationships

Process Development

process safety characterization.

Chemical Production

state-of-the-art chemical plant allowing to handle chemistry in the safest and most efficient way and with the utmost respect for the environment.

Functional formulation

custom-tailored chemical design of functional formulations, with acces to pilot and production installations.

3. Dispersion formulation & production



	Mechanical Stirring	High-Pressure Homogenisation	Melt Dispersion	Precipitation Dispersion	Ball Milling	Bead Milling	Emulsion- Solvent Evaporation
Emulsion	yes	yes	no	no	no	no	yes
Dispersion	yes	yes (theoretically)	yes	yes	yes	yes	yes
Media	solvent water	solvent water	solvent water	solvent water	solvent water	solvent water	water solvent (theoretically)

- Lab, pilot and industrial scale
- USP : solvent stripping via falling film evaporator

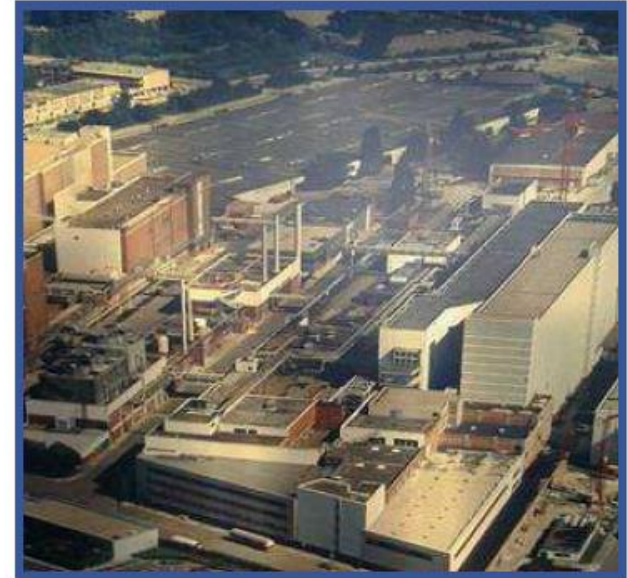
4. Polyester



- Pilot plant PET
 - 20 Kg batch reactor, esterification, polycondensation, pelletisation
- Base production
 - Continuous polycondensation
 - Bi-axial stretching
 - Functional layers application (adhesive, antistatic, ...)
 - Roll-to-roll coating of water-based and organic solvent
 - Web handling and transport
 - Closed loop recycling

5. Coating facilities

- 6 industrial coating-lines (coil to coil):
 - 3 alleys for water based systems
 - M37, M39, M40 (M79)
 - 3 alleys for solvent & water based systems
 - M09, M190, M36
 - 1,75 m web width
- 1 coating-line for glass-plates
- Several pilot-lines
 - For water and solvent based systems
 - 24 cm web width
 - Closed loop or coil to coil
 - Efficient scale-up from concept to production !!
- Coating line + pilot for membranes (liquid induced phase separation)
- PET-film manufacturing for optical and photographic quality films



Innovation @ Agfa : Why ? What ?



- Innovation is the best way to create sustainable long term competitive advantage.
- Innovation is an investment in the future that allows the company to sustain existing and create new businesses.

“Scouting for innovation is the company’s life insurance” Lars Rønn ; Ionas

- A company needs to balance its innovation portfolio in such way to “Keep existing businesses in top shape” to provide the cash necessary to “Create new businesses”.
- Innovation is the combination and creative application of existing and new knowledge aspects to improve existing and to develop new offerings considering the creation or maintenance of added value.

THE VALUE CHAIN AS A MAJOR
SOURCE
OF INNOVATION OPPORTUNITIES
Frans Van Giel BIG – FISCH JAN 2015