



**We
prethink
ink.**

“We are entering a new era of sustainability and there is no turning back” – Jordi Puig



jordi.puig@comexi.com
+ 34 659 067737

Jordi Puig, Brand Manager & Business Developer Flexo

- Jordi is an Industrial Engineer specialized in Mechanics with an MBA program and he has several patents in the Flexographic field.
- Jordi has been working for more than 25 years in Comexi, where he has held the positions of Head of Projects in R+D; R+D Manager; Technical Director of the Flexo Business Unit; and now Brand Manager & Business Developer Flexo within the Printing Business Unit.
- Jordi is actively participating in different projects with FTA Europe and CEFLEX among others, and has also participated in panels and as speaker in Radtech USA, Asiplast and other flexographic events.

Your partner for flexible packaging converting solutions



Comexi is a global supplier covering the **printing and converting processes for flexible packaging.**

Founded in 1954 in Catalunya-Spain, nowadays operates worldwide through own manufacturing sites and sales network.

Our values:



SUSTAINABILITY



HUMANISM



EXCELLENCE



COMMITMENT

430+
Employees

100 M€ in
Sales

4% R&D

CATALONIA - SPAIN



+100
Countries

+2000
Customers

+4500
Machines
installed



NORTH AMERICA

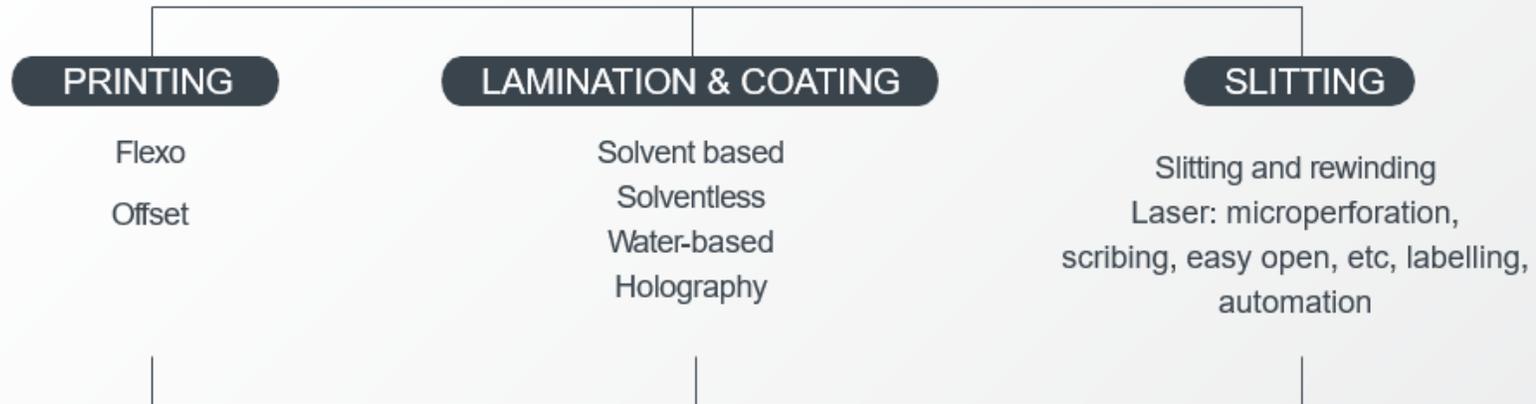
BRAZIL

- Headquarters
- Manufacturing sites
- Spare parts warehouses
- Service sites
- Showrooms
- Sales network



GLOBAL SUPPLIER

We cover the printing and converting process for flexible packaging



DIGITAL SERVICES

TECHNOLOGICAL CENTER



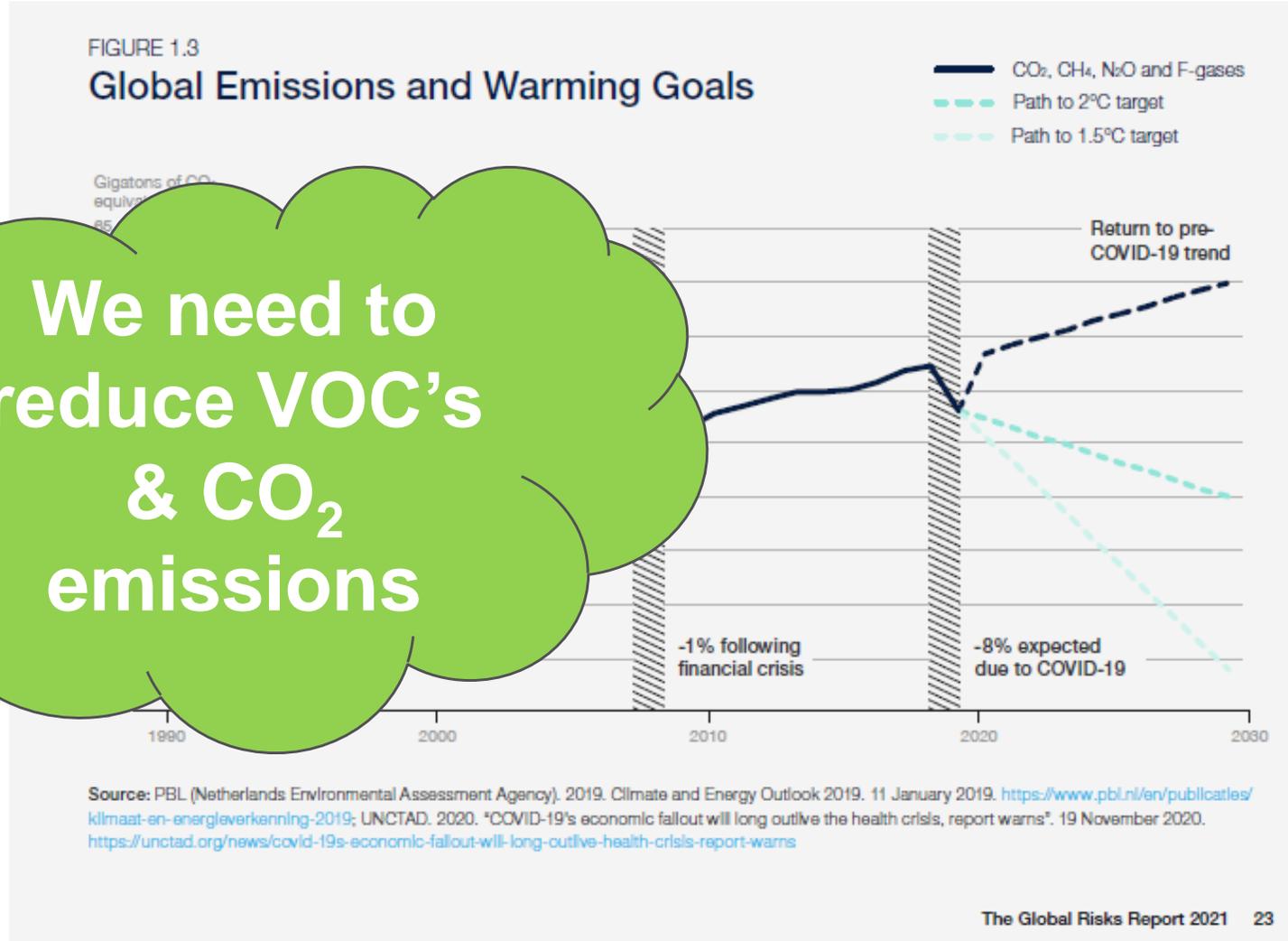
Sustainable Strategies Water-Base Printing

Jordi Puig
Brand Manager & Business Developer
Comexi Flexo

Sustainability as a need

According to “**The Global Risks Report 2021**” from the World Economic Forum, the evolution of the **global emissions and Warming goals** do not go in the same direction... We have had some recess to Covid-19, but it is foreseen continue growing while if wanted to keep the global warming below the target of 2°C we should go in opposite way

We need to reduce VOC's & CO₂ emissions



CHALLENGES of using Water-Based Inks

BASF
We create chemistry

WATER-BASED INKS

PRODUCTION

- Printing & Drying Speed
- Resolubility & Cleanability
- Color Strength
- Visco Stability
- Foaming
- Fine-Line / Half-Tone Printing
- Substrate Wetting



WA

DISADVANTAGES

- Water evaporates slower:
 - Less drying speed
 - Less resolubility

Quality and scope of application

- printed graphics are prepared in HD technology with screen ruling of 150lpi
- average printing speed - 270 m/min
- surface and reverse printing
- wide range of printed materials: PLA, cellulose, PBS, paper, PE, PP, PET and aluminium

SILBU

WATER BASED INKS from OEM perspective. COMEXI

CHALLENGE 1: Printing speed

HIGHER DRYING CAPACITY:

- **AIR TEMPERATURE:** Is not just depending on the machine, but on the materials to be processed (e.g. Printing LDPE don't allow to increase temperature...) → **Small room to play**
- **AIR FLOW:** Higher airflow both intercolor and final tunnel (specially reverse printing); **Up to 50% more**
- **HUMIDITY:** Reduced humidity content in the air maximizes drying capacity, use when applying white first down in front printing; **Dedicated drying**
- **ENERGY CONSUMPTION:**
 - **LO-MI-HI function** to reduce energy consumption
 - **Heat exchangers** to save heating energy

CORONA TREATMENT:

- Increased power to have at least **44 to 46 dyna** (Specially for pinholing)



WATER BASED INKS from OEM perspective. COMEXI

CHALLENGE 2: Resolubility, Cleanability & foaming

INKING SYSTEM:

- **INK CIRCULATION:** Pumps and all related to be made in **Stainless Steel** to avoid corrosion.
- **VISCOSITY & TEMPERATURE CONTROL:** As much as they are **constant** there will be less variation of the final color
- **STIRRING:** Higher stirring to **avoid foaming**
- **ANTIFOAM:** In case stirring is not enough it should be added (**not machine dependent but ink dependent**)
- **CLEANING:**
 - **Never** let the system **dry with ink**
 - **Special** designed **software** for cleaning Water Based inks
 - Automatic **cleaning of plates** when stopping the machine
 - Use **Best practices & tools** to manipulate Water Based inks



WATER BASED INKS from OEM perspective. COMEXI

CHALLENGE 3: Quality & Cleanability

DOCTOR BLADE:

- **INK CIRCULATION:** Central inlet and two sides outlet to have the most uniform distribution of ink and so the most **uniform densities**.
- **OPTIMIZED DOCTORING ANGLES:** To have the best doctoring and the **minimum dot gain**
- **LOW FRICTION PISTONS:** To **minimize** the pressure of the blades against the anilox and so the **dot gain**
- **CLEANING:**
 - **Pipeless doctor blade** for fast changeover of the complete chamber and minimize the stop time (**pit-stop concept**)
 - **Magnetic fixation of the blades**
 - Easy, toolless and fast change of the blades
 - Hard anodized surface for easy cleaning and to avoid corrosion



WATER BASED INKS from OEM perspective. COMEXI

CHALLENGE 4: Know How & Best Practices

MACHINE CHARACTERIZATION:

- **FINGER PRINT:** Necessary to know how our machine performs with water base inks and to select the right anilox and plates
- **ANILOX & PLATES SELECTION & CARE:** To perform the same quality ever

COMEXI CTEC

Sharing Knowledge!

Four value areas:



Consultancy
activities



Innovation



Demo Center Industrial
Lab



Training and
academic
activities

WATER BASED INKS from COMEXI

3 independent drying circuits
+ 50% air volume

Air dehumidification

500 m/min





F4

**EFFICIENCY IN
SHORT RUNS**



F2

**THE FLEXIBLE
PACKAGING
MACHINE**



F1

**AUTOMATION
&
PRODUCTIVITY**

Conclusions

COMEXI has a clear **commitment to the Sustainability**

Flexible Packaging needs to address the path we are running by **adopting Sustainable strategies**

WB printing is an already available solution to start being **Sustainable** and to create **Sustainable Packaging** by a **reduction of VOC's & CO₂ emissions**

WB Flexo printing is a mature and **industry proven technology**

WB Flexo printing can achieve the same **printing quality, maintain the productivity**

COMEXI has the **winning solution to start printing with WB** without no risks and being **profitable from the first run.**

Thank you!!

