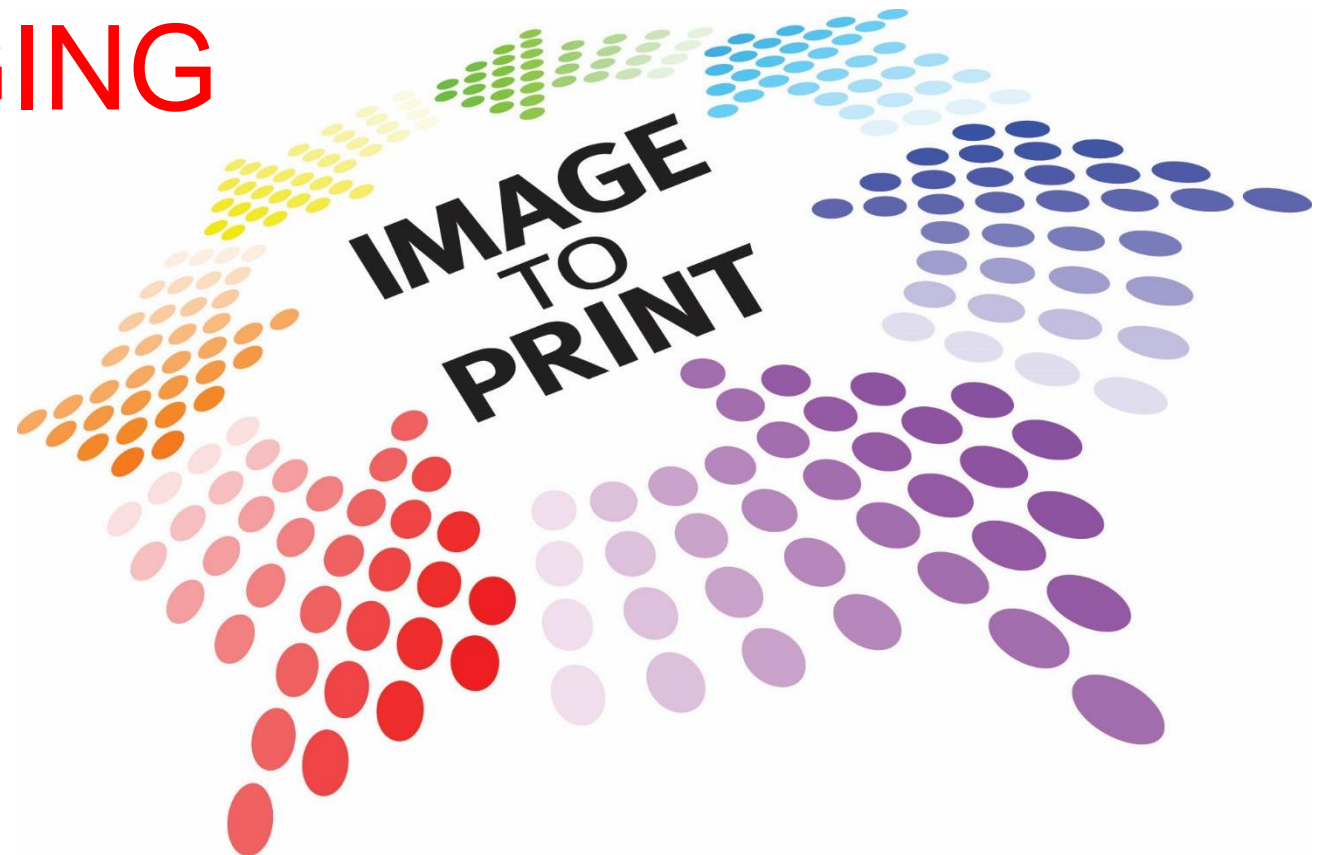


# PRINTING TECHNOLOGY & INNOVATION DAYS FOR FLEXIBLE PACKAGING

Rajkot, Gujarat, India  
19/20 September 2018



# PRINTING TECHNOLOGY & INNOVATION DAYS FOR FLEXIBLE PACKAGING

HOSTED BY:

**Janoschka**



# PRINTING TECHNOLOGY & INNOVATION DAYS FOR FLEXIBLE PACKAGING

Gravure printing with toluene free inks  
- Addressing regulatory challenges

Angshuman Mukherjee  
Head of Application Technology  
Flexible Packaging, Siegwerk India



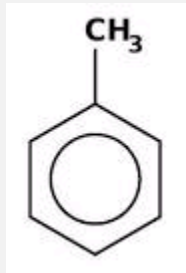
# Agenda

- Toluene & Toluene base ink
- The changing regulatory landscape
- Transition to toluene free migration optimized compliant printing ink



# Toluene and Toluene Based Printing Ink

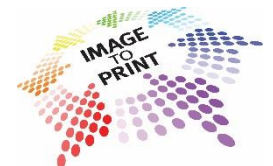
## What is Toluene?



- Clear, colorless liquid with a distinctive smell
- Excellent working solvent (true solvent, diluent, retarder)
- Occurs naturally in crude oil
- It evaporates easily but slower than MEK and Eac
- Excellent lubricant for gravure printing
- Toluene remain and does most of the solvent “work” the ink requires**

## Toluene based Inks

- vinyl or polyurethane inks
- Wide operating windows
- Running smoothly at high speed 350 m/mins and above



# The Issue of Toluene



Hazard Class & Cat.	Code	Hazard Statement
Flam. Liq. 2	H225	Highly flammable liquid
Asp. Tox. 1	H304	May be fatal if swallowed and enters airways
Skin Irrit. 2	H315	Causes skin irritation
STOT SE 3	H336	May cause drowsiness or dizziness
Repr. 2	H361d	Suspected of damaging the unborn child
STOT RE 2	H373	May cause damage to organs through prolonged or repeated exposure (liver, kidney)

- Toluene is a substance with hazardous properties
- Toluene can have severe impact on environment and human health
- Several Global Brand Owners' packaging specifications also prohibit the use of toluene

**The ONLY 100% safe way – Toluene elimination!**



# Agenda

- Toluene & Toluene base ink
- **The changing regulatory landscape**
- Transition to toluene free migration optimized compliant printing ink



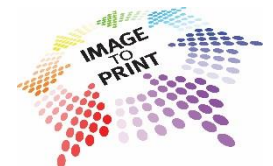
# The changing regulatory landscape



Bureau of Indian standards (BIS) is revamping the standards on printing inks (IS 15495) , including more chemicals on the exclusion list such as Toluene.



- 100% compliance
- Safe and consistent supply
- Integrated supply chain
- Migrants know-how for immediate packaging





Food Safety and Standard Authority of India (FSSAI) is bringing a new regulation on packaging, incorporating printing inks into the scope. This regulation is expected to be notified before December 2018.



INDIA'S FIRST F&B NEWS WEBSITE




A SAFFRON MEDIA WEBSITE

**New regulations for printing ink for food pkg to be in place in July '19**

Tuesday, 31 July, 2018, 08 : 00 AM [IST]

Ashwani Maindola and Shraddha Joshi

- 100% compliance
- Authority monitoring
- Brand owner monitoring
- Stringent specifications
- Auditing



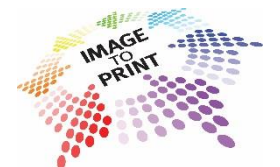
Home About Us Food Packaging & Health Publications Events News

NEWS

## India to develop new food packaging regulations

Indian Food Safety and Standards Authority finds insufficient quality of food packaging, prepares new regulations for packaging materials and printing

October 19, 2017 Greta Stieger



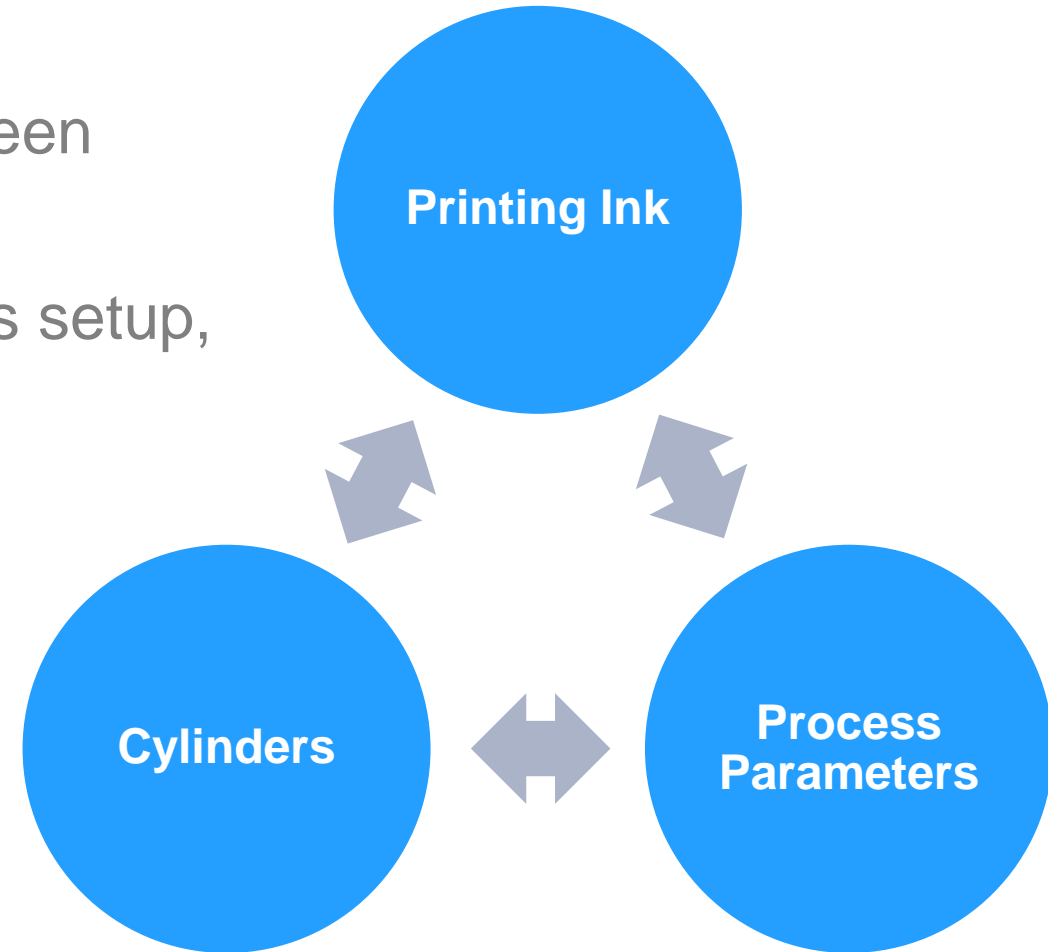
# Agenda

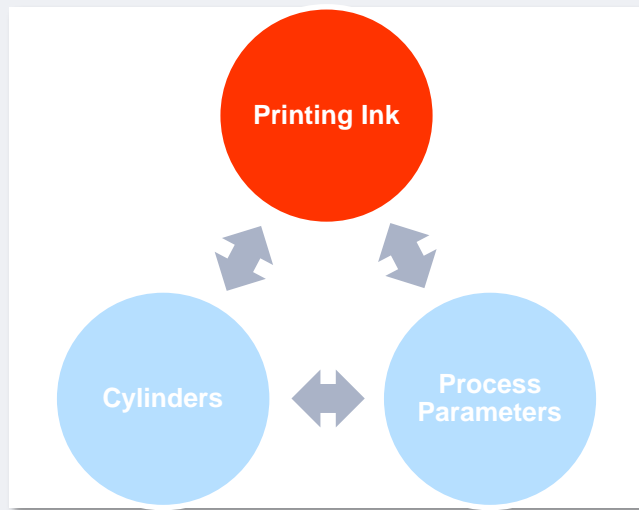
- Toluene & Toluene base ink
- The changing regulatory landscape
- Transition to toluene free migration optimized compliant printing ink



# Transition to Toluene Free Printing

- may be challenging but has already been successfully implemented in India
- requires careful optimization of various setup, materials & process





## Toluene Free Printing Inks already available

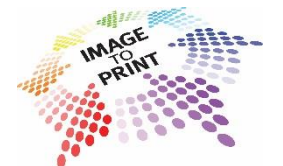
- PU & NC Ink series
- Formulated with Acetates, alcohols and ketones
- NC inks for surface and standard lamination
- PU inks for high-end lamination and retort

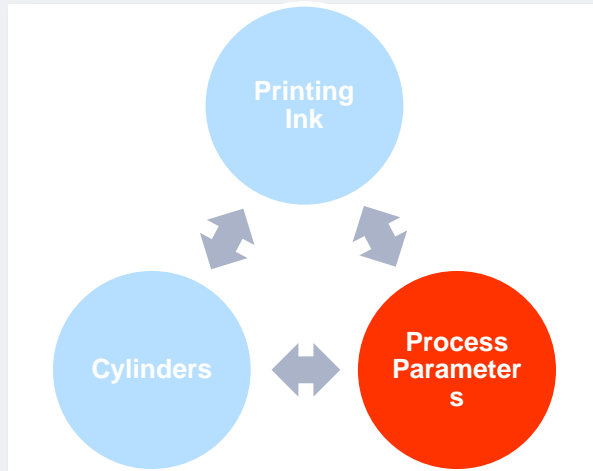


## Challenges with TF PU inks

- Other solvents have limited solubility and lower surface tension versus toluene
- Imbalance in solvent mix causes issue like scumming due to slow drying in long run jobs and high speed printing.

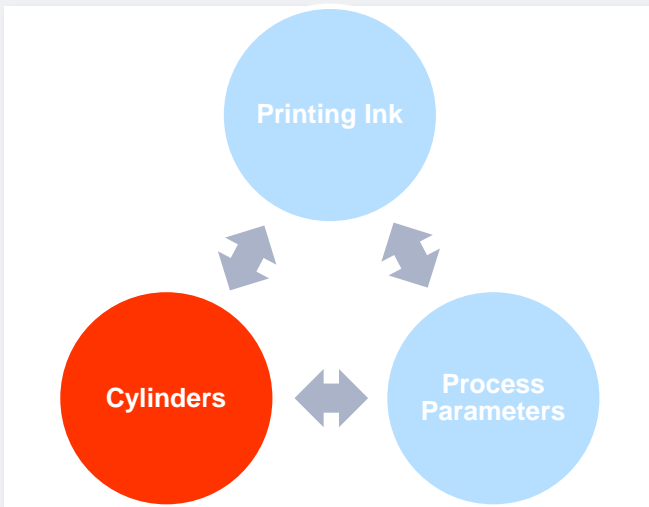
**Overcome by optimizing ink formulations, process parameters & cylinder configurations**





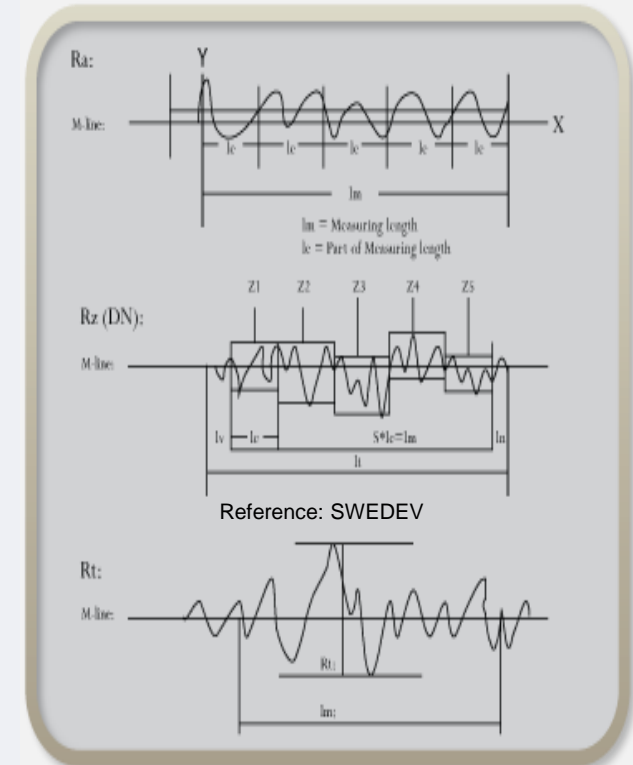
- Auto viscosity controller essential to maintain uniform ink viscosity and solvent balance
- Ink cooling system to control ink drying rate by minimizing solvent evaporation and ensure consistency printing for long run
- Other influencing parameters
  - Chill roll cooling
  - Machine Speed / cylinder wobbling
  - Doctor Blade Pressure

# Cylinder Configurations



## Roughness specifications

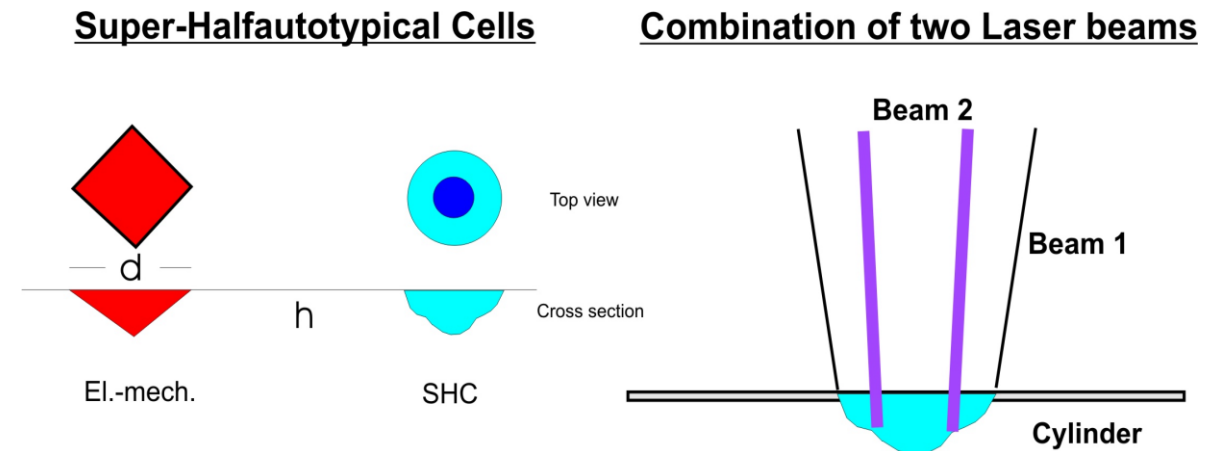
Cylinder roughness: **Ra 0.04 - 0.06  $\mu\text{m}$**   
**Rz 0.40 - 0.50  $\mu\text{m}$**



# Toluene Free Migration Optimized Inks from Siegwerk



- Optimized solvent blends for improved printability
- Established Toluene Free Migration Optimised Printing Inks - implemented at several converters in India
- Carefully formulated to be fully compliant with customer and brand owners specific needs up to Swiss ordinance
- Adhesion on broad spectrum of substrates
- Good lamination performance
- Laser Cylinder Ready
  - High strength
  - Excellent transfer





## **CONTINUOUS IMPROVEMENT IN TF PRINTING**

Dedicated on-site consulting team to support further print shop setup and process optimization e.g. cylinder roughness & viscosity control



## **INK ROOM MANAGEMENT IMPLEMENTATION**

Dedicated personnel to support inks management, manage press return, control shade variations to minimize running cost, waste and rejections



## **INNOVATION & INK TECHNOLOGY**

Strong development team for gravure and flexo printing and wide range of performance inks (SB, WB, UV, EB) custom tailored to the special needs of your application



## **SAFE SOLUTIONS**

As part of the food packaging chain, we combine know-how, analytics and rigid processes to ensure highest product safety standards – only Toluene Free ink plant in India.

