



©Surasak - stock.adobe.com



©angellodeco - stock.adobe.com



©Kadmy - stock.adobe.com



©Costello77 - stock.adobe.com

MARKETS & ECONOMY

Processes4Planet: EU Cross-Sectorial R&I 4
 Ten Sectors of the European Process Industry Deliver Innovation for Society and the Planet
Ludo Diels and Àngels Orduña, A.SPIRE

FEATURE: PHARMA 4.0

A Roadmap for Pharma 4.0 7
 ISPE Accelerates Digital Transformation with Pharma 4.0 Initiative
Interview with Thomas Zimmer, ISPE; Wolfgang Winter, Agilent Technologies, Christian Woelbeling, Körber Pharma Software; and Josef Trapl, Takeda

Transition to Digitalization 11
 How to Effectively Digitalize the End-to-End Supply Chain in the Pharmaceutical Industry
Experts of ACG, Boehringer Ingelheim, Drees & Sommer, Fraunhofer IPT, LifeBee, Merck, Novartis and TTP share their opinions

DIGITALIZATION

Seamless Shift Integration 14
 Digital Shift Management Cures Pharma Processing Communication Woes
Andreas Eschbach, Eschbach

Working with Data Instead of Documents 16
 Digitally Transformed Processes in the Chemical Industry
Bojan Buinac, Bens Consulting

Chemical Industry — Surviving or Thriving in the Next Normal? 18
 Taking Product & Service Portfolio, Profitability, Resiliency, and Sustainability to the Next Level
Interview with Thorsten Wenzel, SAP

PHARMA & BIOTECH

The Future of Biopharma 20
 How to Create a Flexible and Efficient Biopharmaceutical Production Facility
Till Giese, Porsche Consulting

Managing Supply for Complex Biotherapeutics 22
 Drug Substance Manufacturing of Antibody Drug Conjugates (ADCs)
Iwan Bertholjotti, Lonza

A Digital Twin for the Cold Chain 24
 De-risking Temperature Controlled Logistics by Simulation
Stefan Braun and Jan Walbrecker, SmartCAE

INNOVATION

Artificial Intelligence for Drug Discovery 28
 A Technology Platform for Deep-Learning-Based de novo Drug Design
Interview with Yann Gaston-Mathé, Iktos

Redesigning Tomorrow's Plastics Today 30
 Start-up Develops Bioplastics Library to Ensure Inroads to the New Plastics Economy
Interview with Stefaan De Wildeman, B4Plastics

Transforming the Scale-Up of Biobased Molecules 32
 Toll Processing Service for Scaling Up Chemically Modified Natural Polymers Production
Interview with Jere Koskinen and Ali Harlin, Mega Cellulose

EVENTS/INDEX/IMPRINT 34



Senn Chemicals – your CDMO
 for SWISS quality peptides
 and amino acid derivatives

CPhIworldwide:
Visit us at booth 10B70



www.sennchem.com



Peptide APIs

cGMP
 FDA inspected
 Solid and Solution
 Phase Synthesis