TECHNICAL WEBINAR · IN COLLABORATION WITH ITT MIXING SOLUTIONS

Industrial Mixing Fundamentals

Mixer selection, impeller design, key mixing equations and solids suspension — the engineering principles behind reliable agitation in fertilizer and chemical processes

Wednesday, 14 October 2026 | 12:00 – 1:00 PM · Cairo time | Live online · 60 minutes

Agitator performance sits at the heart of reaction, slurry and crystallization units across the fertilizer industry — and mis-sized mixers cost plants in both capital and energy. This focused 60-minute seminar introduces the **core principles used in industrial mixer selection and design**: the geometric and operating relationships that govern sizing, the mounting options and impeller types segmented by flow pattern and fluid regime, the role of tank baffling, and the key equations relating torque, power and flow to impeller speed and diameter. It closes with a practical treatment of **solids suspension** and its impact on CAPEX and OPEX.

The **Arab Fertilizer Association (AFA)**, in collaboration with **ITT Mixing Solutions**, is therefore pleased to invite you to this technical webinar, where two of ITT's mixing specialists — with more than half a century of combined experience — will establish the foundational principles required to understand mixing system design and optimize agitator performance in industrial process applications.

ITT MIXING SOLUTIONS BRANDS

LIGHTNIN · PHILADELPHIA · PLENTY · STELZER · UUTECHNIC

MEET THE EXPERTS

Justin Walker

Principal Research Engineer, ITT Mixing Solutions

Michigan, USA

Justin is responsible for delivering novel mixing solutions across multiple industry segments — chemicals, mining and minerals, and oil and gas — leveraging computational, analytical and engineering resources.

He holds a PhD in Chemical Engineering from the University of Maryland and a BSc and MSc from the University of Alberta. Before joining ITT Mixing Solutions (formerly SPX FLOW), Justin spent nearly 15 years as a Mixing Subject Matter Expert at the Dow Chemical Company, bridging the gap between laboratory and manufacturing scales on process development and scale-up teams.

John Smith

ITT Mixing Solutions

37+ years in mixing & agitation technology

John brings more than 37 years of experience in industrial mixing and agitation technology across the chemical, mining and minerals, and specialty process industries.

Trained through a City & Guilds Craft Engineering Apprenticeship and holding Engineering Council Technician and HND Mechanical Engineering qualifications, he has extensive experience supporting the selection and optimization of mixing systems for demanding process applications. At ITT Mixing Solutions, John works with technology licensors, EPC contractors and end users to improve process performance and solve complex mixing challenges through agitation technology and engineering best practices.

MODERATED BY

Mohamed Kamar

Technical Director, Arab Fertilizer Association (AFA)

Guiding the discussion, audience questions and the live Q&A with ITT's mixing specialists.

Reserve Your Seat

Scan the QR code or use the registration link below. Joining details for the online session will be sent to registered participants ahead of the webinar.

Register Here

WEBINAR PROGRAMME

Agenda at a Glance

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5 MINS — **Welcome & Introduction**
Welcoming participants, introducing ITT Mixing Solutions and the presenters, and outlining the webinar objectives and expected learning outcomes.
MODERATOR: **Mohamed Kamar**

10 MINS — **Mixer Selection Fundamentals**
The key geometric and operating relationships that form the foundation for sizing and selecting mixers for specific process requirements.
SPEAKERS: **Justin Walker & John Smith**

10 MINS — **Mounting, Impellers & Baffling**
Mixer mounting options and orientations; common impeller types and their segmentation by flow pattern and fluid regime; the role of tank baffling with recommendations for common applications.
SPEAKERS: **Justin Walker & John Smith**

10 MINS — **Key Mixing Equations**
Relating torque, power and flow to impeller speed, diameter, and impeller-specific power and flow numbers — the quantitative core of agitator design.
SPEAKERS: **Justin Walker & John Smith**

15 MINS — **Solids Suspension**
Levels of suspension and their impact on CAPEX and OPEX, with special considerations for hindered-settling slurries, startup with settled solids, impeller proximity to the vessel bottom, and continuous operation at variable levels.
SPEAKERS: **Justin Walker & John Smith**

10 MINS — **Q&A and Open Discussion**
Your questions answered — from impeller selection for specific duties to scale-up and troubleshooting of existing agitators.
WITH: **Participants & Speakers**

FUNDAMENTALS YOU'LL TAKE AWAY

The three relationships every agitator specification rests on

POWER DRAW
$P = N_p \rho N^3 D^5$
Power number · density · speed · dia.

PUMPING FLOW
$Q = N_q N D^3$
Flow number · speed · diameter

TORQUE
$T = P / (2\pi N)$
Shaft and gearbox load

KEY TOPICS

- Mixer selection & sizing
- Mounting & orientation
- Impeller types
- Flow patterns & fluid regimes
- Tank baffling
- Torque, power & flow
- Solids suspension
- Hindered-settling slurries
- CAPEX vs OPEX
- Agitator performance

WHO SHOULD ATTEND

- Process and production engineers in AFA member plants — reaction, slurry, phosphoric acid and crystallization units
- Maintenance, reliability and rotating-equipment engineers responsible for agitators
- Project, engineering and procurement teams specifying or upgrading mixing systems
- R&D and technical services staff working on scale-up and process optimization

Registration Is Now Open

Scan the QR code or follow the link to secure your place. Participation is online — joining details will be shared upon registration.

Register Now