



Science For A Better Life

## Process Safety Indicators at Bayer MaterialScience

A short experience report

Brussels, 2012-02-01

Bayer MaterialScience



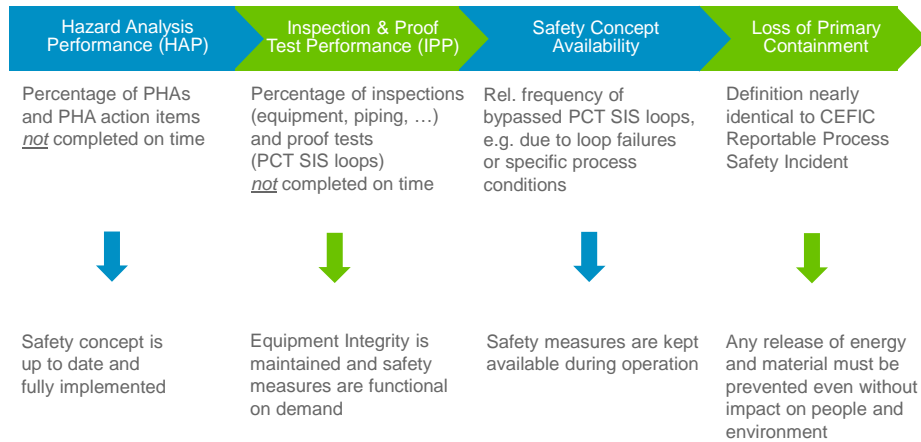
### Agenda

- Our Approach
- Our Experience with Leading Indicators
- Our Experience with Loss of Primary Containment
- How to deal with Safety Trips?

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## Our Approach: 4 Plant & Process Safety (PPS) KPIs



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## Overall Experience



- Rollout started in 2008, reporting is done quarterly (LoPC 2009, monthly)
- Factors ensuring a successful implementation were
  - Face-to-face meetings with P&T managers almost everywhere
  - Approach easy to understand
  - Definitions and data collection integrated into existing management system and software
- Reporting on global level includes P&T organization up to Executive Committee
- Local and BU safety councils communicate and manage process safety performance / incidents the same as occupational health and safety performance / injuries
- Communication of process safety performance in town hall meetings etc. is increasing

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## Experience - Leading Indicators

### Hazard Analysis Performance

- Excellent tool to coordinate and accomplish HAZOP work
- Used by management in yearly target setting process with employees
- Fosters further improvements

### Inspection & Proof Test Performance

- Already high performance level at time of implementation
- No specific yearly targets but useful to maintain high performance level and up-to-date documentation

### Safety Concept Availability

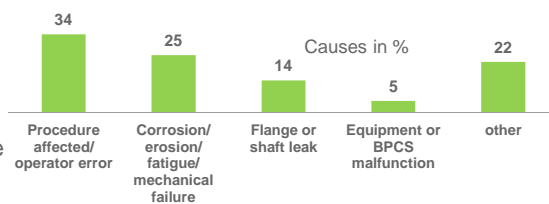
- Increased focus and awareness of operations on bypassed SIS loops
- Reconfirmed importance of work permit procedure for bypassing



## Experience - LoPC

- Almost all LoPC incidents were substance releases without fire, injury or environmental impact

- Relatively high percentage of technical causes



- Reliability engineers started work on improvement programs

- Thresholds suitable for world scale polymer units, but high for health care industry

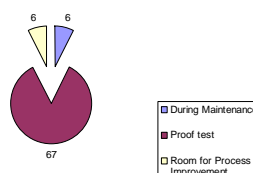
- Lagging indicators better suited for long-term communication concept regarding safety performance

- Leading indicators are discussion topics as long as performance has room for improvement



## How to deal with Safety Trips?

- Safety trips are near misses or low level incidents
    - Shall be reported and investigated to learn from (→ safety pyramid)
    - Is counting safety trips as performance indicator useful?
  - Modern IT tools allow detailed analyses of BPCS and SIS loop actions
  - A pilot was performed to analyze safety trips:
  - Safety trips occurred for various reasons but no trip occurred because of a critical process condition
  - High workload for identifying safety-relevant trips
- Reporting of safety trips in our existing near miss and incident information system is currently preferred



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Thank you!