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INCIDENT NOTICE

(Kindly direct all correspondence to the Secretary General)

INCIDENT TITLE: **Repeated poor-shaped crystals generated and manually handled in Lead Azide precipitation process**

DATE POSTED 22 November 2023	REFERENCE IN 23-09	SOURCE Orica
INCIDENT OUTLINE		
When did it happen?	April to August 2023	
Who experienced it?	Orica	
Where did it happen?	Lorena, Brasil	
What material was involved?	Lead Azide	
What happened?	<p>Over a period of several months, lead azide would occasionally be manufactured with poor (undesirable) crystal structures (typically rods and stars). The crystals were observed by the process operator, and material was drained from the reactor and taken to a magazine for storage prior to destruction. The handling of poor lead azide crystals exposes an operator directly to a major hazard.</p> <p>In total, approximately 20 batches were manufactured during this time which did not meet an appropriate safety specification for safe handling.</p> <p>No initiation occurred as part of these events, no injuries to personnel involved.</p>	
Why did it happen – theory?	<p>Several factors led to these events, including:</p> <ul style="list-style-type: none">- Deviations from normal crystal production were normalised by the site.- Poor water management resulted in water contaminated with organic material and rust being used in manufacture of solutions.- Poor understanding of pH control, measurement and calibration.- Absence of good processes and procedures for destruction of out of specification material.	
What was the impact?	Production stopped at the site. Corrective actions in process to address the above gaps. Plant will restart in the coming weeks.	

ADDITIONAL INFORMATION

Enclosure

Refer to photos attached

Event Value

Aside from resolution of the above noted technical issues, organisational factors surrounding lead azide manufacture are critical to ensure safety of operations personnel. Teams should be enabled to stop processes and escalate when abnormal scenarios occur, prioritise resolution of process issues and restart safely.

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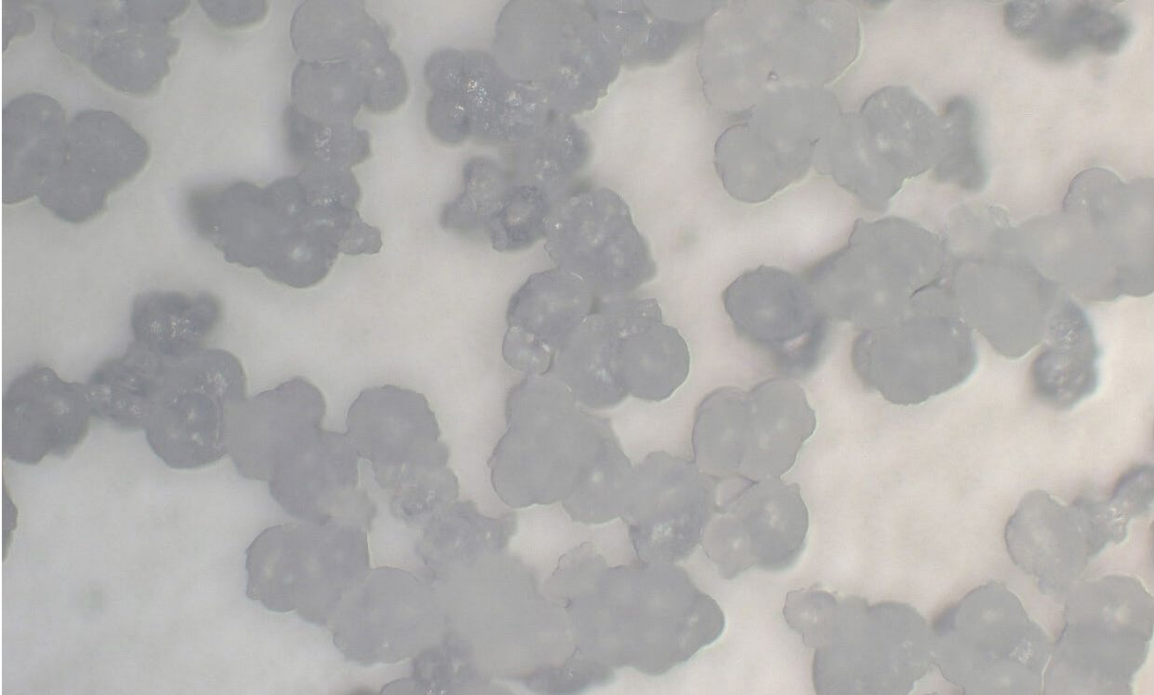
Secretary General, SAFEX International

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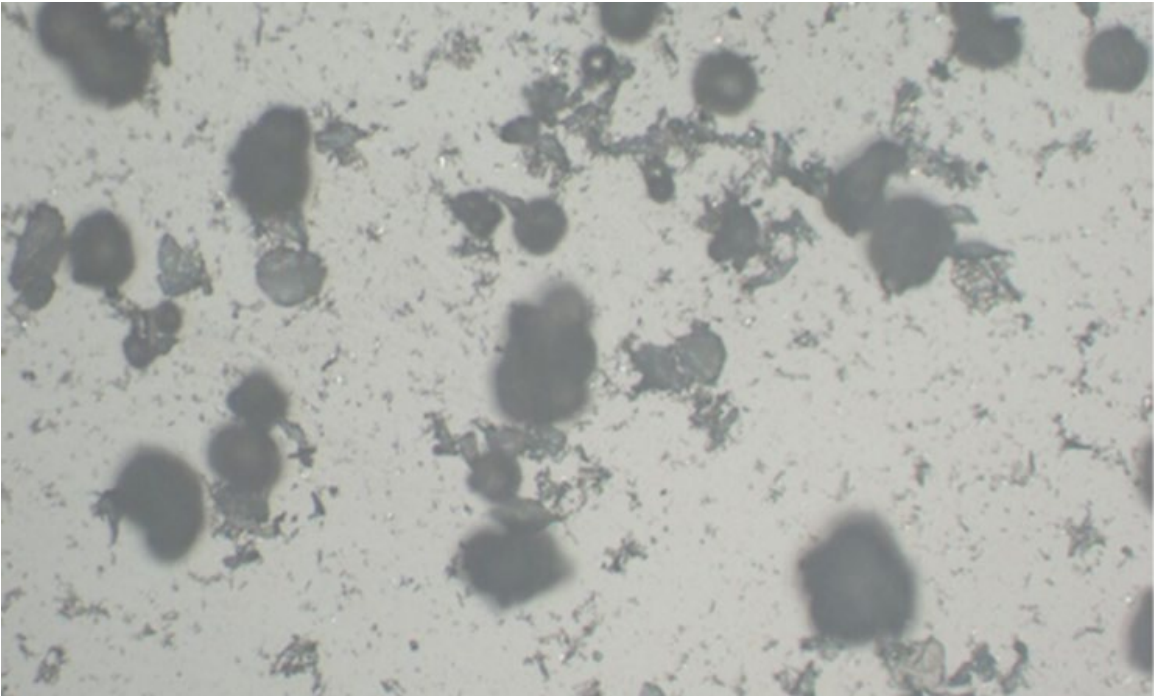
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ENCLOSURE



Good crystal structures are spherical (typical analysis from Lorena)



Example of poor crystal structures associated with these events