Evaluation of the management of explosive atmospheres in milling companies: the Île-de-France region example

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www.lossprevention2022.org

OBJECTIVES

- Assess the fire and explosion risk (ATEX)

  - ✓ related to combustible powders
  - ✓ in the milling and grain industries (grain mill, bakery, wholesale of grain…)
  - ✓ within the scope of a French National Social Insurance prevention program
  - ✓ in France, more specifically in the Île-de-France region

METHOD

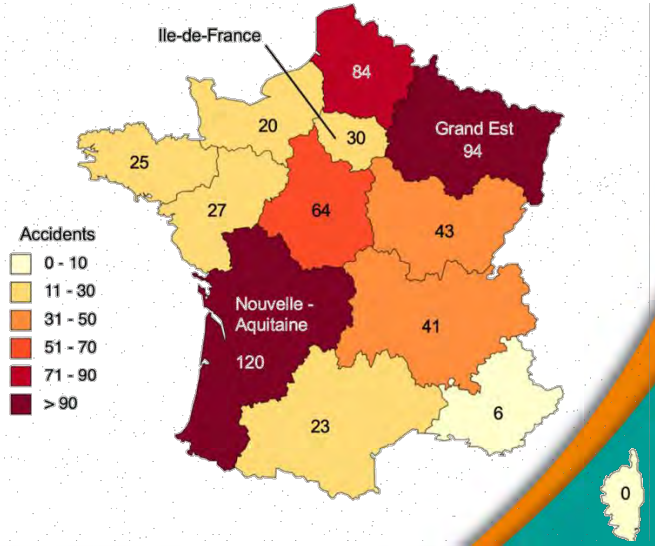
www.aria.developpement-durable.gouv.fr

- Combination of 2 approaches:

✓ Analysis of the feedback from the ARIA accident database (French Ministry of Ecological Transition)

1975 - 2021: + 600 fires and explosions

✓ Onsite observations on six facilities representative of the milling industries in the Ile-de-France region



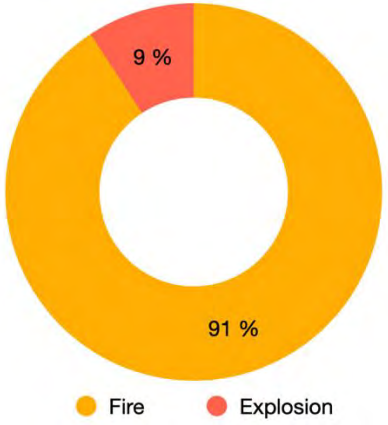
LESSONS LEARNED

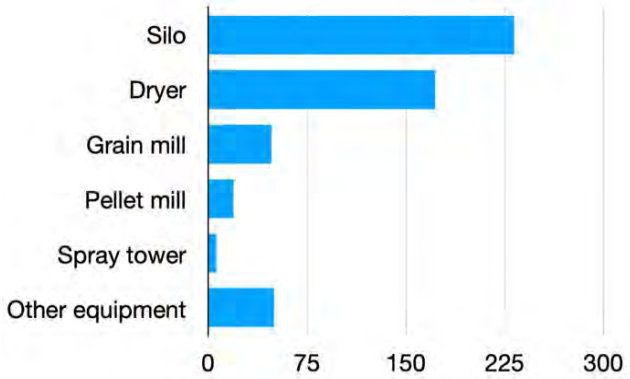
- Main consequences:

  ✓ Explosion/Fire ratio : 1/10

  ✓ 8% resulted in injuries or fatalities

  ✓ Location:





LESSONS LEARNED

- Main causes:

  ✓ Nature of the grain

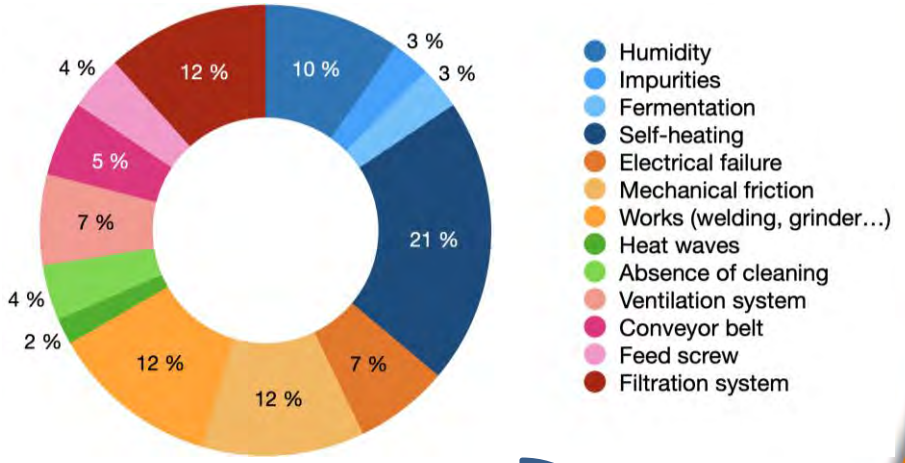
  ✓ Most common causes:

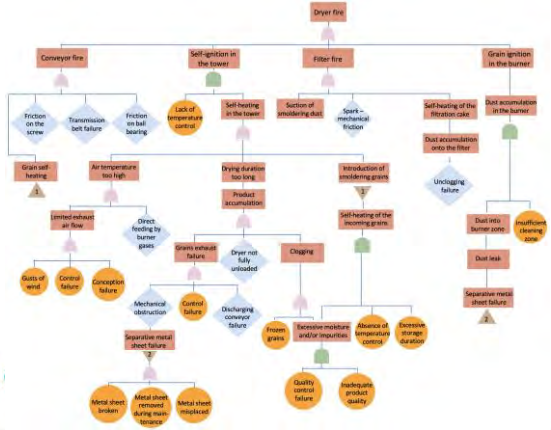
  self-heating (21 %)

  mechanical friction (12 %)

  works (12 %)…

  ✓ Fault tree analyses:





ONSITE OBSERVATIONS

- Conclusions:

✓ Dust deposits, broom for floor cleaning, electrical equipment close to grain…

✓ Still prevention to be done → definition of more targeted actions