

Are we prepared for long term black outs?

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CHEMISTRY™**

Chemours World wide



60+

Production- and
research-sites,
joint ventures,
and offices

6,400

Employees

120

Countries to which
we deliver



Chemours Dordrecht

Split up from Dupont
2015

Employees
> 500





what are putting in the line in. what that thing is better

Long term black outs – Why now?

Due to Energy transition:

- More solar and wind power – no storage
- Less coal and nuclear power plants
- More dependence between European countries

War in Ukraine

- Higher chance of a cyber attack
- Ukrainian electricity net is connected with the European net (since Feb 2022)

Extreme weather

- global warming



Long term black out – What will happen in the first hour?

- No water supply
- No street lights or traffic control system
- No public transport
- No fridge/ oven/ stove (in case of an electrical stove)
- No internet/ TV



Long term black out – What will happen after 2 hours?

- Hospitals will run out of fuel for the Emergency generators
- No Petrol
- After 3 hours the emergency number won't be reachable
- Communication will be extremely difficult after 6 hours
- Shops will not be able to stock supplies and payments can not be done

Government expects that the industry takes appropriate matters to manage the additional risks.



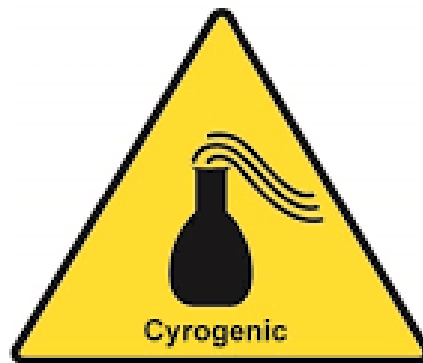
Brief Description of incident in USA

- A Derecho storm hit the site at approx. 6:45pm with extreme wind (70-85 mph gusts) and a deluge of rain for approx. 20 minutes which cause a total plant power outage occurred on the evening of June 29th, 2012 for 4 days.
- Four overpressure protection rupture discs of comparable chemical storage tanks blew within 60 minutes. The total release quantity to the Emergency Scrubber resulting from the bursting of these four rupture discs is estimated to have been less than 40 lbs.
- Learning: Improve ways to open key automatic valves that are intentionally designed to be closed upon loss of air – goal to avoid blowing RD/RVs

Black out hazards at the Chemours Dordrecht Site

Uncontrolled release of chemicals (with a low boiling point) as a result of loss of cooling of insulated storage tanks

Thermal expansion – due to locking in of liquid for a long period of time



How is Chemours Dordrecht protected against a short power cut?

First priority: controlled process to bring plant in safe position after power cut

- Battery back-up for seamless transition (UPS)
- There are two emergency generators that will keep the safety system running as long as back up diesel is available. For example:
 - Air monitor
 - Key displays in CCR
 - Pressure monitoring for cryogenic storage
 - Dilution blower in the central vent stack



How did we approach this scenario?

Create an overview of the hazards for this scenario

- Uncontrolled release of chemicals (with a low boiling point) as a result of loss of cooling of insulated storage tanks
- Thermal expansion – due to locking in of liquid for a long period of time
- Plus additional hazards

Perform what if checklist for which:

- Simulations are performed
- Investigation is done in what operations requires in these circumstances

Recommendations to control the additional hazards

How do you manage the additional risks during an extended power outage?

- Have you defined the availability of diesel for the time needed to dilute released chemicals to acceptable levels?
- Have you defined the critical valves and determine how these can be operated at lack of instrument air?
- Have you defined a detailed procedure for the required actions?
- Have you considered extra thick tank insulation (Passive)?

Other considerations

Provide alternative communication and/ or charging tools for example walkie talkies

Make sure shifts are able to come to site and are always aware of the status on site

Make sure power is turned off at the site – more control over restart up



Thank you for your attention

Any Questions?

