

Paris Session 2022



Reduction of SF6 emissions by exchange of SF6 with C4-FN/N2/O2

SC B3 - PS2 – Question P2.2

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HITACHI
Inspire the Next

Question and our contribution

Question PS2.2

- Much development has taken place to reduce SF₆ impact on the environment from utility application for electrical insulating and interrupting equipment. What are likely to be the enduring initiatives to prevent SF₆ gas leaks and find a possible alternative to SF₆ for GIS applications?

Answer

- To prevent SF₆ gas leaks in the installed base, a “retrofill” solution was developed: The SF₆ can be exchanged with C4-FN/N₂/O₂ gas mixture while leaving the primary equipment (gas-insulated lines GIL) in place. In the contribution we show details of the retrofill procedure as well as of the 420 kV GIL pilot project executed in 2021.

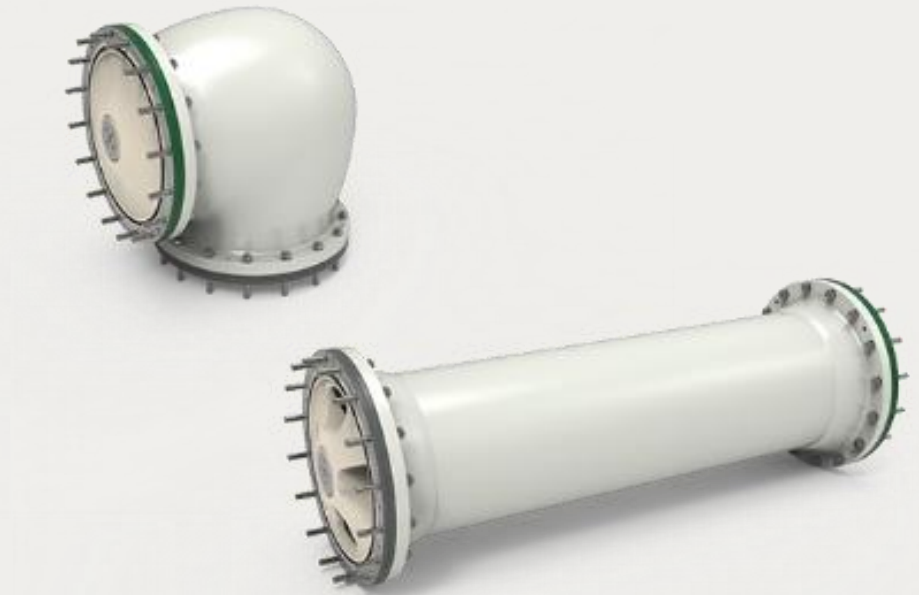
Reduction of SF₆ emissions by exchange of SF₆ with C4-FN/N₂/O₂

- C4-FN/N₂/O₂ mixture enables to reduce SF₆ of the installed base
- Reduces SF₆ emissions caused by leakage and handling
- World-first replacement of 755kg SF₆ with fluoronitrile based gas mixture in Richborough, UK
- Reduce installed SF₆ by ≈50%, depending on the substation layout
- Fast and effective process

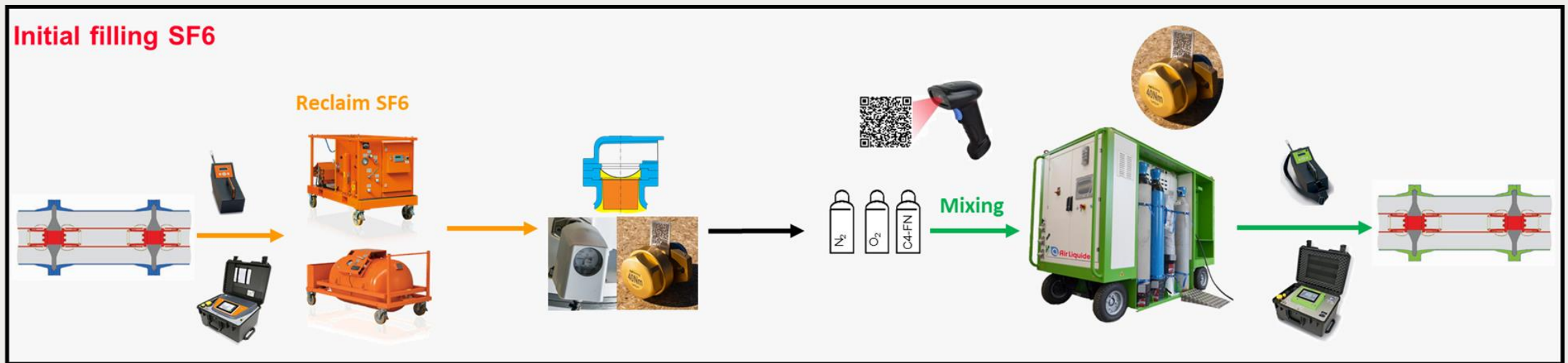


Retrofill

- Swap SF₆ Gas with C4-FN/N₂/O₂
- ELK-3, 420kV bus ducts
- No need to exchange sealings
- No need to deliver new busducts
- Only few changes necessary
 - Gas density monitor
 - Filling valve



Retrofill on-site



Group Discussion Meeting