2003b(2)/2002b(4): Describe the potential interactions b/n volatile agents and CO₂ absorber
- All interactions can occur with soda lime, ↑risk with baralyme

**Soda Lime → composition:** Ca(OH)₂ 94%; NaOH 3 – 5%; KOH 1%; indicator; silica (hardens powder); H₂O
  - Soda lime → CO₂ + H₂O → H₂CO₃
  - H₂CO₃ + 2NaOH → Na₂CO₃ + 2H₂O + Heat  \textit{fast}
  - Na₂CO₃ + Ca(OH)₂ → CaCO₃ + 2NaOH  \textit{slow}

**Baralyme → composition:** Ca(OH)₂ 87.4%; BrOH 7.4%; no silica or H₂O

**Amsorb (new compound) → composition:** Ca(OH)₂; CaCl₂ Nil known interaction, expensive, ↓absorbency

1. **Trichloroethylene**
   - Complete incompatibility with soda lime
   - In a heated circuit → produce \textit{phosgene} (sarin), HCl, CO → all toxic

2. **Enflurane / Desflurane / Isoflurane**
   - Contain difluoromethyl groups (CHF₂)
   - CO formation
     - ↑ formation in baralyme > soda lime
     - Worse if desiccated / ↑T°C
     - Can get up to 30% carboxyHb

3. **Halothane / Sevoflurane**
   - Degrade to \textit{haloalkenes} → shown to be toxic in rats → ?effect in humans

4. **Sevoflurane**
   - Degraded by hot absorber, worse with low FGF / ↑partial pressure
   - ↓production with high FGF, dessicated soda lime

- **Compounds A – E →** only A & B in sufficient quantities for analysis

- **Compound A**
  - Compound A shown in rat models to cause nephrotoxicity
    - LD₅₀ 400ppm
  - However, levels reaching LD₅₀ in animals are not reached in circle circuits, even when using ‘metabolic’ flows <0.25L/min fresh gas flows
  - After 5hrs at 0.25L/min FGF → 20ppm produced

- CO₂ absorbers also absorb volatiles
  - ↑time of induction of GA / ↑time to wake
  - Volatile can leach out of CO₂ absorber later eg at the beginning of another case
    - Issues with Pts susceptible to MH

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