



CA Storage Safety

Presented to: AgroFresh Crunch Clinic

Date: August 12, 2009

Controlled Atmosphere Storage Technology

- Landmark advance in apple storage technology
 - Extended seasonal availability of apples
 - Improved quality and nutritional value of our products to consumers
 - Provided for profitable expansion of apple industry
- However, there are no “perfect technologies”
 - Requires air tight storage rooms
 - Low oxygen environments
 - Confined space hazards
- Recent industry fatalities.



Michigan, USA

Date	October, 2008
Location	Berrybrook Farms
Victim	59 year old with 15 years of storage experience
Circumstances	<ul style="list-style-type: none">• Attempting to gather apple sample from CA room• Sample on forklift indicated he had already collected one sample• Unable to hold breathe during second entry into room• Found dead in room



Germany

Date	January, 2009
Victim	29 year old fruit company employee
Circumstances	<ul style="list-style-type: none">• Entered closed CA room on weekend to collect samples• Became unconscious and later died• 52 year old male also entered CA room to look for employee lost consciousness• Was revived by emergency medical personnel and recovered



Chile

Date	March, 2009
Victims	<ul style="list-style-type: none">• 18 year old• 19 year old
Circumstances	<ul style="list-style-type: none">• Both employees new to QC Department• Found with weak vital signs in CA room by maintenance manager• Had entered CA room without authorization to collect samples• Both died at local hospital



These Are Not the First CA Fatalities

- Will they be the last?
 - It's really up to you
- Who were the victims?
 - Some lacked training
 - Others knew the risks, but were complacent
 - Believed “it can't happen to me”
 - There are safer methods of handling samples
- Teach and train for SRM
 - Situational awareness
 - Risk assessment
 - Management of risk



Safe Handling of Samples Without Entering CA Room



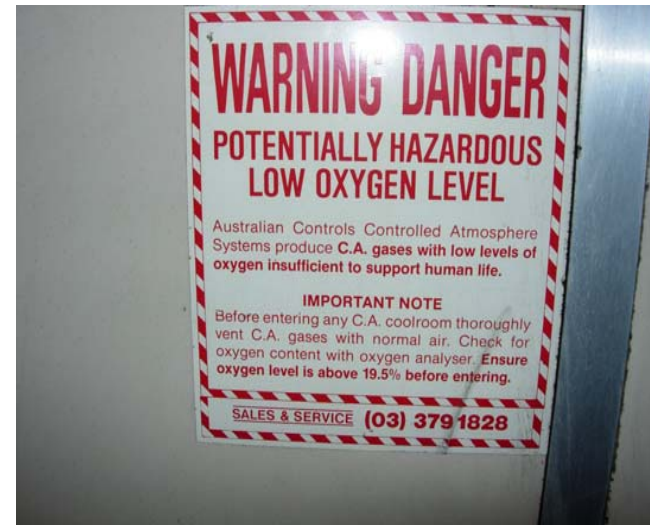
SITUATIONAL AWARENESS

Closed or Venting Rooms



SITUATIONAL AWARENESS

Posted Warning Signs



RISK ASSESSMENT

No early warning signs under typical CA conditions!

Oxygen Content	Signs and Symptoms
15 – 19%	Decreased ability to work strenuously. May impair co-ordination and may induce symptoms in persons with coronary, pulmonary, or circulatory problems.
12 – 15%	Respiration deeper, increased pulse rate and impaired co-ordination, perception and judgment.
10 – 12%	Further increase in rate and depth of respiration, further increase in pulse rate, performance failure, giddiness, poor judgment and blue lips.
8 – 10%	Mental failure, nausea, vomiting, fainting, unconsciousness, ashen face, blue lips.
6 – 8%	8 minutes may be fatal in 50 – 100% of exposures; 6 minutes may be fatal in 25 – 50% of exposures; 4 – 5 minutes recovery with treatment.
4 – 6%	Coma in 40 seconds, convulsions, respiration ceases, death.



Check Oxygen Concentrations Before Entry Remote Room Monitors or Portable Sensors



A Darwin Award Candidate!



Who could be so foolish??



Don't Let It Be You!



We don't want to tell you how to run your
business. . . .

We just want to keep our customers and
their employees safe.

Thanks for listening

