



Ethanol Tank Fire Fighting

Facing challenges to broad ethanol introduction

Workshop, Kansas City, Nov 1 2011



SP Technical Research Institute of Sweden

Honorary sponsors



Workshop agenda

09:00 Registration and Continental Breakfast

10:00 Welcome and Introduction

Chief Richard R. Carrizzo, Southern Platte Fire Protection District

Henry Persson, SP Technical Research institute of Sweden, Fire Technology (SP)

10:30 LASTFIRE - Success Story and Lessons Learned

Niall Ramsden, Resource Protection International (RPI),UK

10:50 Tank Fire Fighting Research

Bob Benedetti, National Fire Protection Association (NFPA), USA



SP Technical Research Institute of Sweden



Workshop agenda, cont

11:00 Previous Work & Knowledge Gaps
Henry Persson and Francine Amon, SP

Regulatory Framework
Niall Ramsden, RPI

12:15 Light Lunch

13:00 ETANKFIRE-project

Henry Persson, SP, Niall Ramsden, RPI

13:45 Breakout Discussions and Coffee Break

14:45 Summary and Next Steps

15:30 Close



SP Technical Research Institute of Sweden



SP Technical Research Institute of Sweden

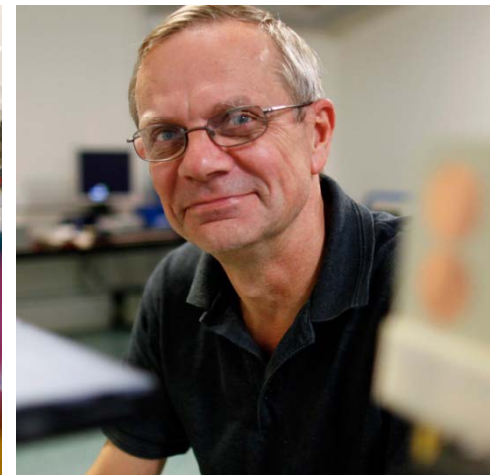
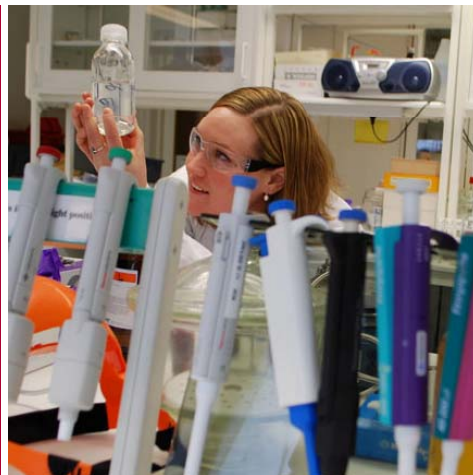
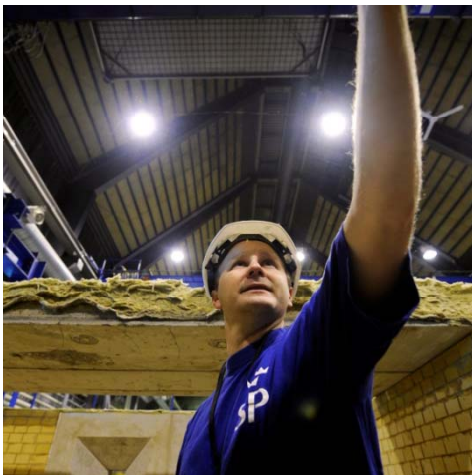


www.sp.se





SP Technical Research Institute of Sweden is a leading international research institute. We work closely with our customers to create value, delivering high-quality input in all parts of the innovation chain, and thus playing an important part in assisting the competitiveness of industry and its evolution towards sustainable development.



Our Core Areas

Energy and Environment



Foods



Building and Construction



Mechanics and Automotive Industry



Wood Technology and Wood in Construction



Electronics and ICT



Fire, Risk, Safety and Security



Measurement Technology and Calibration



Materials Technology and Chemistry



Certification



SP Technical Research Institute of Sweden



SP Fire Technology



Leading fire laboratory in Europe
70 Employees
50 % Testing, 50% Research
About 50 % of funding from abroad



SP Technical Research Institute of Sweden



Fire Technology activities

Testing and research in the areas of

- Fire resistance
- Reaction to fire
- Fire protection



SP Technical Research Institute of Sweden





The 5th International Symposium on Tunnel Safety and Security



New York, USA, 14th – 16th March, 2012



FIVE – Fires In Vehicles

2nd International conference
Chicago Sept 27th-28th, 2012



Gothenburg, Sweden,
28th – 29th March, 2012

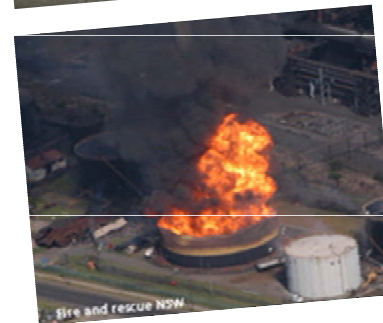


SP Technical Research Institute of Sweden



SP Fuel Storage Safety

An international Center of Expertise for fire safety during storage and handling of **liquid fuels, solid biofuels** and recycling of **waste material** involving research, innovation and knowledge transfer.



SP Technical Research Institute of Sweden

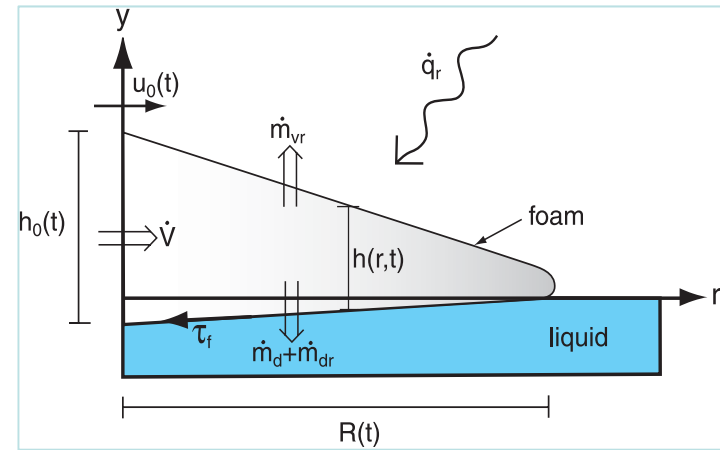
ETANKFIRE

Testing and research on fire fighting foams



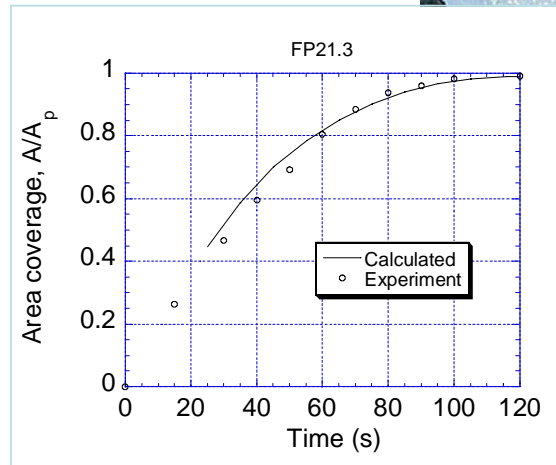
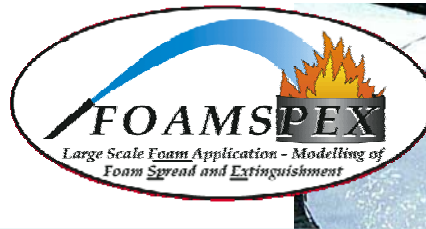
Foam testing

- EN1568
- ISO 7203
- IMO
- ICAO
- etc



Foam research

- Test method development
- Applied research
- Fundamental understanding



SP Technical Research Institute of Sweden



Why do we need ETANKFIRE?

- **Handling and storage volumes of ethanol are increasing**
- **Ensure adequate investments in ethanol fire protection**
 - **Different properties compared to petroleum products**
 - **Lack of specific fire protection recommendations**
 - **Limited practical experience from tank fires**



SP Technical Research Institute of Sweden



~~SPI~~
~~SWEDISH PETROLEUM INSTITUTE~~

SPBI
SWEDISH PETROLEUM & BIOFUEL
INSTITUTE

Ethanol Tank Fires

Operational RM Issues

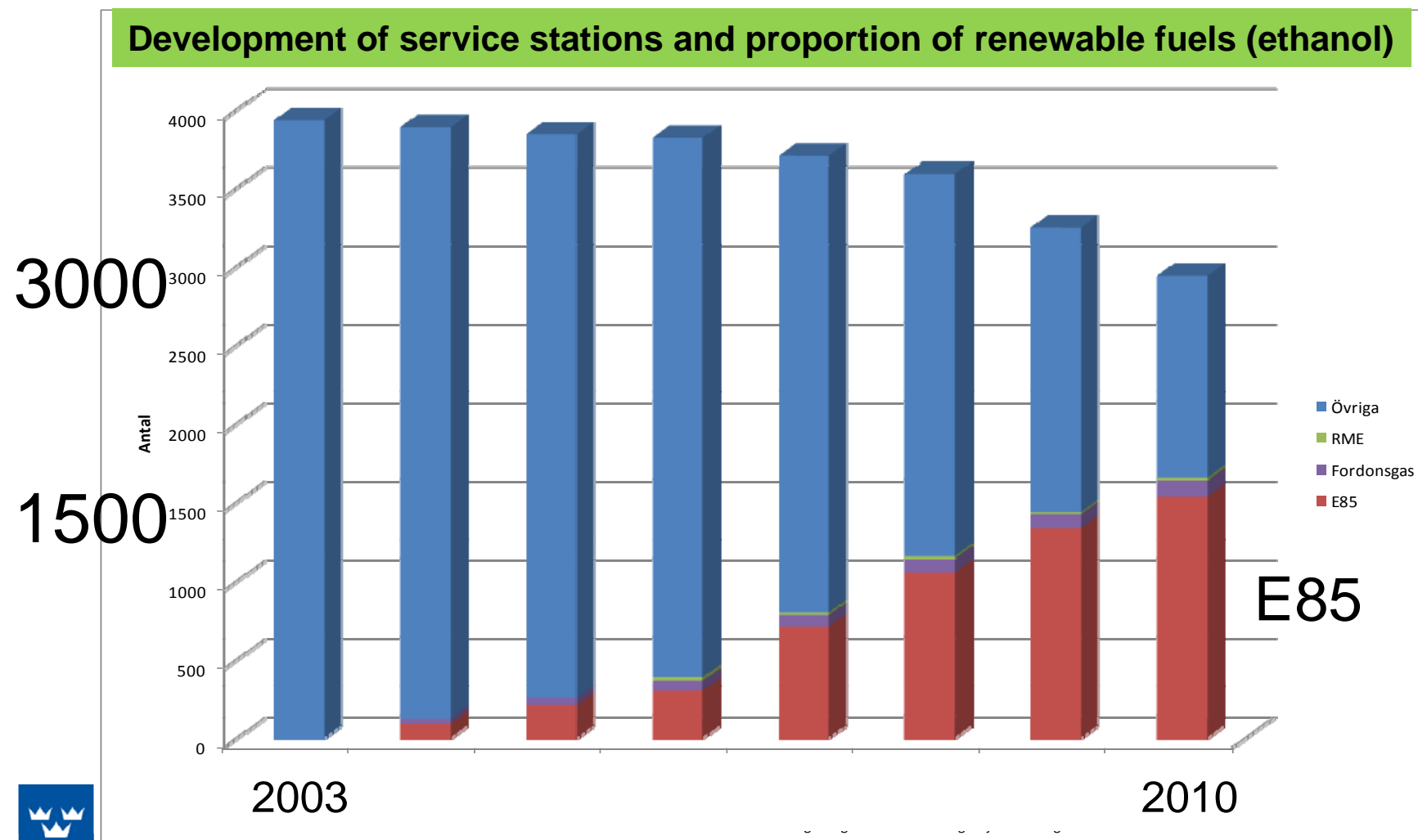


SP Technical Research Institute of Sweden

Per Brännström



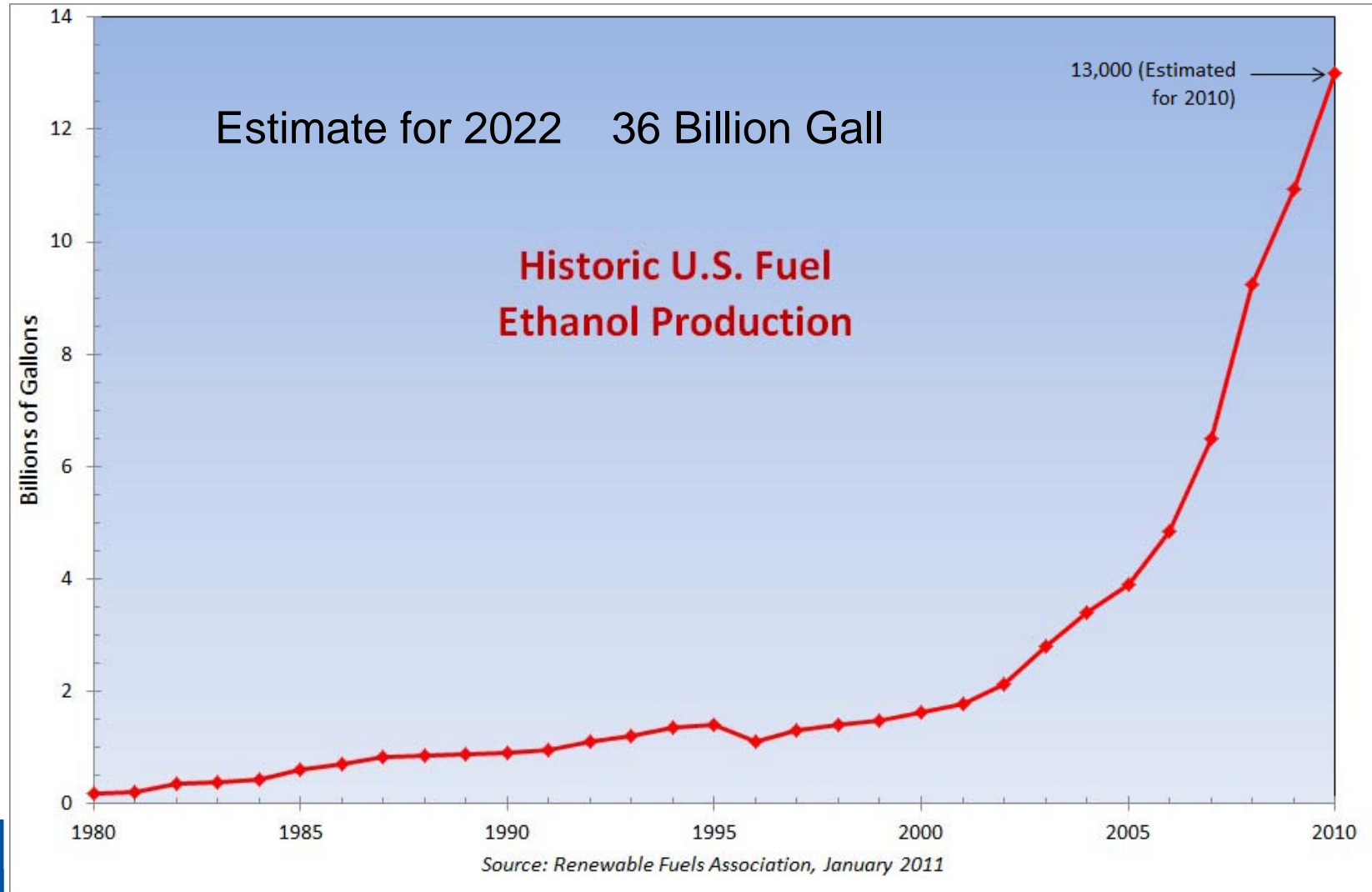
Fuel stations providing renewable fuels



SP Technical Research Institute of Sweden



Ethanol production in US 1980-2010

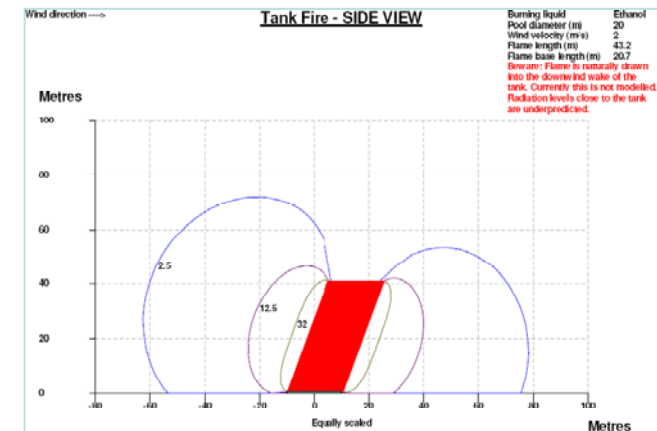
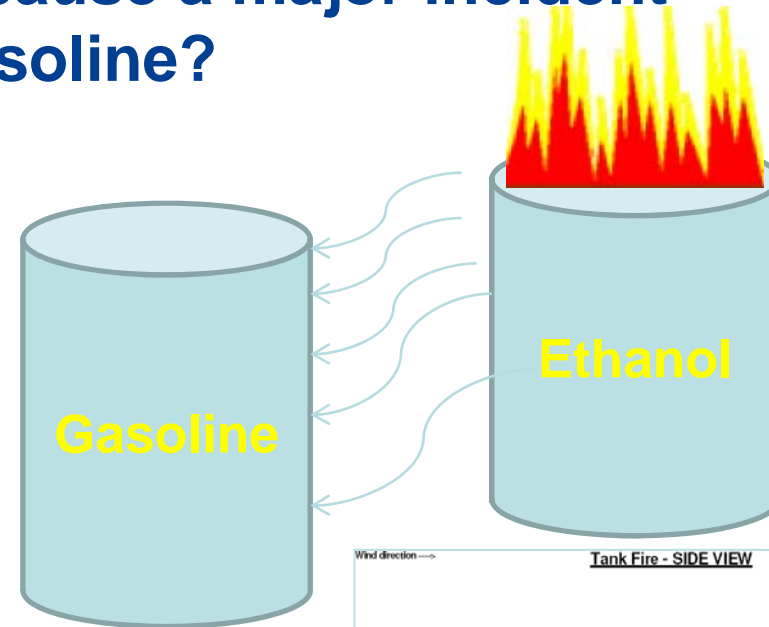


SP Technical Research Institute of Sweden



Operational Risk Management Issues

Is Ethanol more likely to cause a major incident scenario compared to Gasoline?



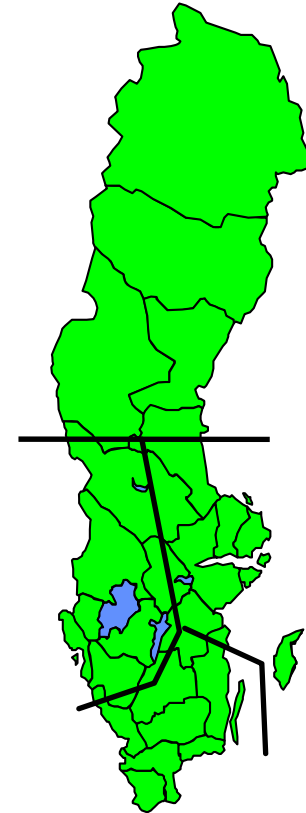
➤ Need for fixed cooling systems to avoid escalation due to flammability properties and increased heat radiation?



SP Technical Research Institute of Sweden



Operational Risk Management Issues



- Need to complement our existing mutual aid system ?
- Change equipment and tactics for succesful fire fighting of ethanol tank fires?



SP Technical Research Institute of Sweden

