

The Deer Park LEPC is a cooperative partnership between community, government, emergency response agencies, businesses, and industry striving to promote and maintain public health and safety by preparing for hazardous materials-related incidents as part of a comprehensive community program. Our goal is to protect citizens and the environment by providing hazard awareness education, training exercises, emergency response plans and an emergency notification system.

DEER PARK LOCAL EMERGENCY PLANNING COMMITTEE

AGENDA

OF

A MEETING OF THE DEER PARK LOCAL EMERGENCY PLANNING COMMITTEE TO BE HELD AT THE DEER PARK EDUCATION SUPPORT CENTER, 2800 TEXAS AVENUE, MONARCH ROOM A & B, JANUARY 23, 2018 BEGINNING AT 11:00 A.M. TO DISCUSS THE FOLLOWING BUSINESS:

Introductions

Company Overview —Akzo Nobel

Public Comments on LEPC Mission/Function (3 minute time limit)

Minutes – November 2017

Financial Report – November 2017

Committee Reports

Executive Committee

Update of TCEQ Grant

Plant Manager's Breakfast

Communications

Review any and all Level 2 and Level 3 incidents

Community Awareness

LEPC Website

Emergency Response/Transportation

2018 Drill

New Business

Meeting Schedule 2018 – Feb. 27, Mar. 27, Apr. 24, May 22, June 26, Aug. 28, Sept. 25, Oct. 23, Nov. 27


Shannon Bennett, TRMC
Deer Park LEPC Secretary/Treasurer

Posted January 19, 2018

TO: Deer Park LEPC

13-198

SUBJECT: Minutes January 23, 2018

CALL TO ORDER

Chairman Jay Stokes called the meeting to order at 11:00 a.m.

INTRODUCTIONS

Self-introductions were given by Henry de La Garza of dLG Public Relations, Inc. and Del Blake, Chairman of the Southeast Regional LEPC.

PRESENTATION

Company Overview – Roy Hernandez of Akzo Nobel presented an overview of the company's history as Texas Alkyls, with operations beginning in 1959. A joint venture between Stauffer and Hercules, it became the world's first commercial producer of aluminum alkyl. Akzo acquired Stauffer's shares in 1987 and Hercules' shares in 1991. We then changed our name from Texas Alkyls to Akzo Nobel, and in 1994, we merged completely. Currently, we are Akzo Nobel Specialty Chemicals and are no longer associated with the paint division. We produce metal alkyls which are most often used as cocatalysts in the polyolefin industry. (Exhibits (A1-A6))

Presentation – None Given.

PUBLIC COMMENTS ON LEPC MISSION/FUNCTION (3 MINUTE TIME LIMIT)

There were no comments.

MINUTES

Motion was made by Chuck Wolf and seconded by Richard Philbrick to accept the minutes for November 28, 2017. Motion carried unanimously.

FINANCIAL REPORT

Motion was made by Rick Anorga and seconded by Robert Hemminger to accept the financial reports for November 28, 2017. Motion carried unanimously.

COMMITTEE REPORTS

Executive Committee, Jay Stokes reported - "Our Executive Committee met on January 8, 2018 and it was mentioned about keeping a project and/or project list for current and future events. If you have any suggestions for programs, presentation or anything of this region please let one of the Executive Committee members know."

Update of the TCEQ Grant – Communication Chair, Robert Hemminger advised membership that due to invoicing of the new signage for city facilities, the deadline for the grant has been extended a couple of months for those items only. Mr. Hemminger displayed an example of the signage and where they will be located for the benefit of our citizens and visitors. He also discussed a list of items of which the TCEQ grant purchased on behalf of the City.

Plant Manager's Breakfast – Chairman, Jay Stokes encouraged everyone to mark their calendars for the 4th Annual Plant Manager's Breakfast to be held on Thursday, March 1st at the Battleground Golf Course from 7:30 a.m. – 8:30 a.m. Members were encouraged to let their plant manager's know about the breakfast.

Communications Subcommittee, Robert Hemminger reported: Mr. Hemminger mentioned that there are nine meetings left in 2018 and, there are nine companies that have not given a company overview. These companies were encouraged to meet with him to plan a time for their overview.

Review of Level 2 and Level 3 Incidents – Richard Philbrick of Shell reported, on December 26, 2017, there was an oil sheen on their dock. On January 3, 2018, a compressor shut down on the Olson Unit, which was unexpected, they did exceed their flaring and ended with two large flares on the south side. On January 18, 2018, there was a Level 2 propane bullet pressure control system associated with the freezing event, which is an ongoing investigation to better understand what took place.

Mr. Hemminger reminded the membership to make sure their personnel are putting an appropriate amount of details in the E-Notify message.

Kevin Machemehl of OxyVinyls reported, "On January 17, 2018, due to the freeze, there was a rupture disk that failed. Called out as a Level 2 as a precaution, before our monitoring made sure that nothing had gotten offsite. On January 18, 2018, there was a 1-inch pipe that ruptured on the bottom of one of our model reactors, which is an ongoing investigation. Right now, it looks like it was due to the freeze. We called that in as a Level 2 also."

Shannon Bennett reported for Christina Perez, Community Awareness Subcommittee: Ms. Bennett advised that work is ongoing for the new website and by January 26th, the final approval is due. It is scheduled to go live on February 16th. The current website is very outdated, but the new one is coming along. The LEPC website is now under the City's oversight. It was also noted that the 2018 calendars are out.

Emergency Response/Transportation Subcommittee, Mark Turvey reported for Ray Cook: "The committee will meet immediately following today's meeting and we're basically covering a three-year process of a table-top drill. This year we will enhance the table-top drill and a live exercise involving multiple LEPC's in fall.

NEW BUSINESS

Chris Hext reported that EHCMA has taken on the project of trying to get an overpass added over the railroad tracks on Independence Parkway. They are seeking support of the project from several entities, such as, the school district, the City, the LEPC, etc.

ANNOUNCEMENTS

Robert Hemminger asked that if anyone is out and about in the City and you see a location that needs the new signs, to let him know.

Shannon Bennett announced that the 2018 Contribution packets will be going out in February and that several companies have not returned their employee count forms.

Rick Deel spoke of ECHMA sponsoring past hurricane workshops and that there have been several inquiries of having another workshop. A poll of the members was taken to see if another workshop is feasible. The poll showed the members approval.

Announcement was made for Witt O'Brien's Annual Compliance Workshop on Thursday, April 12th, 2018.

NEXT MEETING

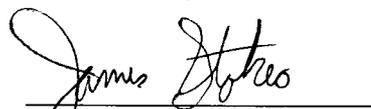
Deer Park Independent School District will host the meeting on February 27, 2018.

Meeting adjourned at 11:45 a.m.

ATTEST:


Shannon Bennett, TRMC
Secretary/Treasurer

APPROVED:


James Stokes
Chairman

Properties of Metal Alkyls



Properties and appearance of metal alkyls

- Most are clear colorless liquids
- Very low vapor pressure and high boiling temperatures
 - Typical vapor pressure: Less than 10 mm Hg at room temperature
- They are not corrosive to carbon steel
- Most are thermally stable
 - Not shock sensitive
- Can be stored indefinitely at ambient temperatures under inert gas such as nitrogen or argon
- They are transported and stored as concentrates (heat) or diluted in hydrocarbon solvents



What are metal alkyls ?



- They are compounds with organo-metal bonds
 - Metals used at Deer Park are aluminum, magnesium, zinc, and boron.
 - Common organic groups are methyl, ethyl, butyl
 - Halogens are also present in some cases-usually chloride
- We often refer to them by acronyms
- Examples
 - Triethylaluminum TEAL
 - Diethylaluminum chloride DEAC
 - Diethylzinc DEZ
- They are most often used as cocatalysts in the polyolefin industry
 - Polyethylene
 - Polypropylene

Reactivity of metal alkyls

- Metal alkyls are highly reactive with
 - Air
 - Water- Reaction is violent
 - Substances that contain oxygen- such as alcohol
- In concentrated form, most metal alkyls are pyrophoric
- With sufficient dilution with hydrocarbon solvents, such as hexane, metal alkyl solutions can be made non-pyrophoric and less reactive



What is pyrophoric?

- A substance that ignites spontaneously in air is pyrophoric
- Pyrophoricity is determined by:
 - Syringing a sample of metal alkyl solution into a specific grade of filter paper.
 - If the paper is charred or ignites, the sample is pyrophoric
 - The highest concentration that will not char the paper is the non pyrophoric limit (NPL)
- NPL is mainly used for classification and transport regulations
- It will not always predict behavior of metal alkyls when spilled



ALZKO NOBEL

Safety Precautions

- Store and transfer under nitrogen or other inert gas
- Avoid direct heating or cooling with steam or water
- Strict spill control measures
- Training of all personnel
- Use of personal protective equipment
- Fire isolation
 - Automatic shutoff valves
 - Curbs, burning pits, etc



ALZKO NOBEL

NPL Values of some common metal alkyls

Aluminum alkyl	Asarfin™	Castrol™ grade of aluminum grade 35 (Alkyl) (ASTM D155)	n-Hexane	n-Heptane
TEAL	13	isopentane	12	12
TIBAL	20		22	25
TNHAL	36		42	42
DEAC	13		13	13
EASC	-		15	15
EADC	20		25	29

ALZKO NOBEL

Products of combustion

- Complete and controlled combustion
 - TEAL: Carbon dioxide, water vapor, aluminum oxide-evident as white smoke
 - DEAC: Same as TEAL + HCl
 - Magnesium, zinc alkyls will form their respective metal oxides
- Incomplete and uncontrolled combustion-Fire
 - All of the above +
 - Carbon monoxide, carbon, and hydrocarbons
 - The smoke will be black

ALZKO NOBEL

Reactions with water

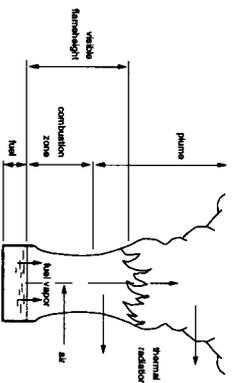
- Water will react with metal alkyls to produce
 - Metal hydroxide
 - Hydrocarbon gas, such as ethane
 - Heat
- The reaction is quite violent due to the heat and gas evolution
- The evolved hydrocarbon gas will burn
- So when metal alkyls contact water, byproducts are similar to those from straight combustion, but there is more noise



AZZO NOBEL

Freely burning pool fires

- During a pool fire, fuel evaporates from the surface at the boiling point of the liquid while the bulk of the liquid remains at lower temperature
 - As the fuel vapor rises, it sucks in the surrounding air and burns in the combustion zone
 - Part of the generated heat is transferred back to the fuel surface where it is used to evaporate more fuel and keep the fire burning
 - The rest of the heat is dispersed to the environment and to the plume zone



AZZO NOBEL

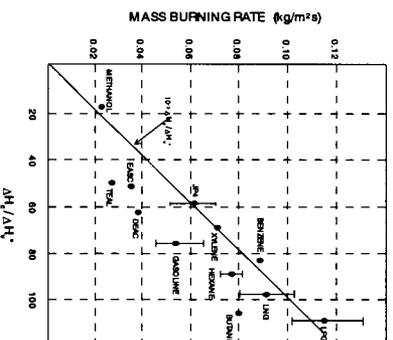
Burning Properties

- Metal alkyl fires can be spectacular and difficult to extinguish
- But in several important respects, the fires are less severe than those of common hydrocarbons
 - Burning rate
 - Flame height
 - Thermal radiation
- In these respects, solutions of metal alkyls and hydrocarbons can burn more severely than neat metal alkyls

AZZO NOBEL

Burning rates

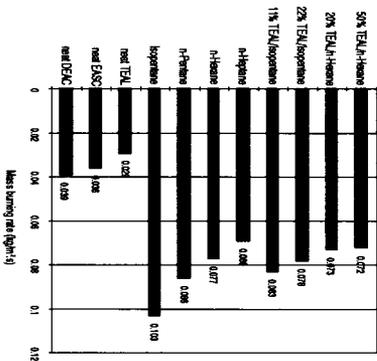
- The ratio of heats of combustion H_c and heat of vaporization H_v are important determinants of burning rates
- The greater the ratio of H_c/H_v , the greater the predicted burning rate
- Burning rates of metal alkyls are predicted to be less than common hydrocarbons



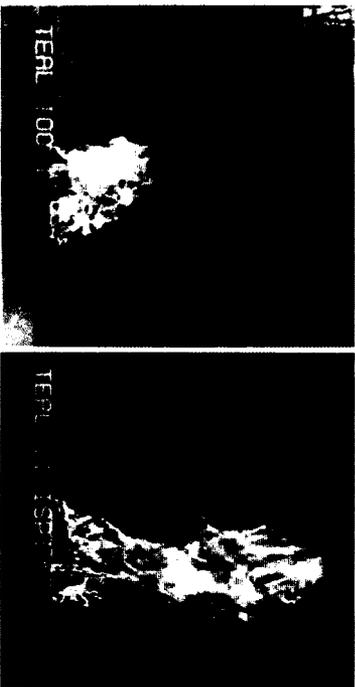
AZZO NOBEL

Actual burning rates of metal alkyls vs hydrocarbons

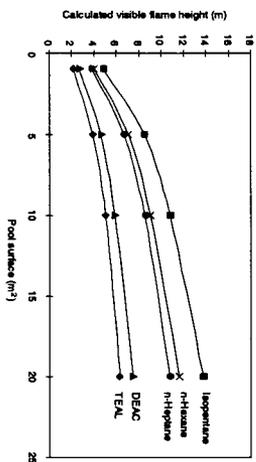
- Metal alkyl burning rates low compared to common solvents
- Mixtures of metal alkyls and solvents burn rapidly at first, then more slowly-maximum rate is near that of pure solvent
- Reason: The solvent evaporates more rapidly and is burned faster than the metal alkyl
As the remaining metal alkyl becomes more concentrated, the burning rate will slow down.



NEAT TEAL and 11% TEAL in Isopentane



- Height of a flame is dependent on the diameter of the pool and the mass burning rate
- Bigger pool diameter means higher the flame
- Faster burning rate also means bigger flame
- Calculations predict metal alkyl flame heights will be less than those of solvents
- Metal alkyl solutions will have higher flame heights than neat metal alkyls



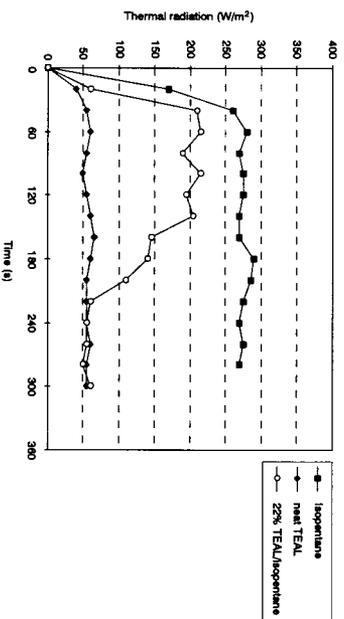
Flame height

Thermal radiation

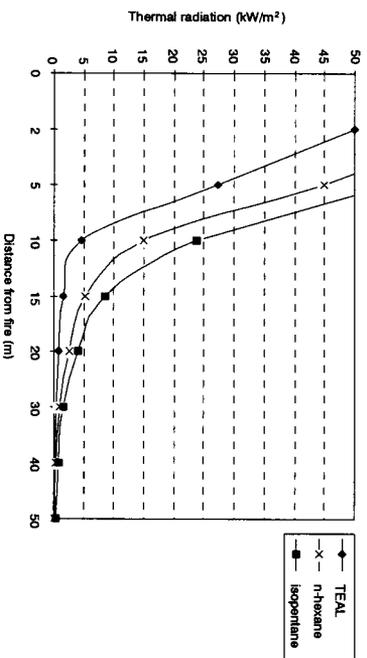
- Thermal radiation from a pool fire causes damage to skin and to buildings and equipment
- In general, buildings and equipment can tolerate more heat than personnel

Thermal radiation intensity (kW/m²)	Effect
2.1	Personnel: Minimum value necessary to be felt as pain after 1 minute of skin exposure
4.7	Personnel: Causes pain after 15-20 seconds exposure, injury after 30 seconds exposure
12.6	Buildings: Exposed wood and flammable vapors released by insulation material could be ignited Tanks, equipment and structures: Thin, unrefracted steel can lose mechanical integrity
23.0	

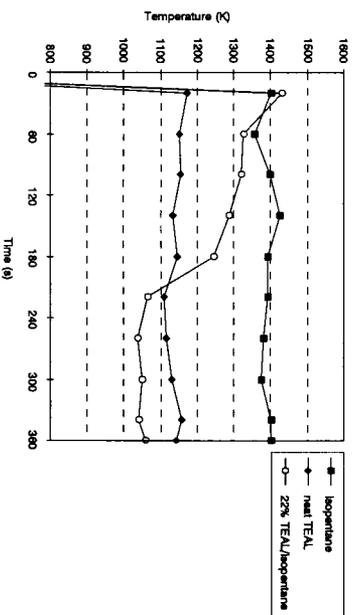
Thermal radiation 24 meters from a 1 meter diameter pool fire



Thermal radiation comparison-10 square meter pool fire



Flame temperatures



Metal alkyls solutions and vapor clouds

- Neat metal alkyls will usually ignite when spilled
 - They will not form a vapor cloud
- Solutions of metal alkyls may not ignite when spilled
 - If that is the case
 - The solvent will begin to evaporate forming a vapor cloud
 - The metal alkyl will react with air and start warming the remaining pool of liquid
 - Eventually the pool can ignite or an external source can cause ignition
 - Result: Vapor cloud ignition

**Much of the preceding data provided by Akzo
Nobel Safety Research Laboratory
Deventer, the Netherlands**

