

ROD BECKETT - DEER PARK (HYG)
Lloyd Davison - Deer Park (Safety)
T. R. Lipscomb - Deer Park (Works Manager)

F: DP PVC Ind Hy

Interoffice Correspondence

To: Ted Guth - Deer Park (Plastics)
From: R. F. Adams - GCA (Environmental Services)
Date: February 1, 1978

D 118-C

Subject: Environmental Services: Industrial Hygiene/Safety
Plastics Plant - Deer Park Works
Explosive Potential of PVC Dusts

Enclosed are copies of additional data on the explosive properties of PVC dust clouds. The tests were run on samples from Deer Park in the period 1970-1972.

As previously indicated, the explosive hazard is very low and the material is considered safe by the testing laboratories.

If you have any comments or questions regarding these reports, please let me know.

Bob

R. F. Adams

RFA/gg
Enclosure

Environmental Services

File No.: ~~2693~~ 26093E
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 ~~J. C. Molina~~ 4
 R. F. Adams.....
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 A. R. Swift.....5
 Lab Technicians.....



Diamond Shamrock

OCC 11118

Alexander & Alexander, Inc.
1185 Avenue of the Americas
New York, N. Y. 10036
Telephone 212 575-8000

Alexander
& Alexander

April 11, 1972

Mr. Robert E. Frey, Director
Safety & Environmental Engineering
DIAMOND SHAMROCK CHEMICAL COMPANY
300 Union Commerce Building
Cleveland, Ohio 44115

SAFETY	
R. E. Frey	
A. Nor...	
W. Driscoll	
ENVIRONMENTAL	
W. R. Taylor	
J. G. Lant	
P. J. Cogas	
A. Gregoric	
R. D. Hall	

Re: EXPLOSIVE CHARACTERISTICS OF PVC DUST

Dear Bob:

After reviewing your communication of April 5, 1972 on the captioned, I contacted Joe Zaremba and discussed this matter with him.

His file indicates that this subject has been previously covered by the Factory Mutual Engineering and himself, indicating that PVC resins will char, melt and burn in an ignition source by "self extinguishing when the source of ignition is removed. ~~Further tests indicate that PVC dust will not explode.~~

Tests were conducted on PVC samples from Deer Park, and we have test reports on this substance under the following dates: 12/2/70; 1/14/71; and 2/4/72.

In view of the contents of these "testing" reports, it is my considered opinion, that there ~~is no immediate concern regarding the "explosion" exposure.~~

If I may be of any further service, Bob, please feel free to call upon me.

Cordially,

JJK
James J. Kolchin
Administrative Assistant
Casualty Loss Control

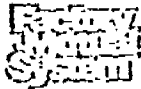
JJK:bae

cc: Mr. J. Zaremba
A&A Property Dept.

Telex 127452
Telex 420530 (International only)
Teletype 710 581-5262
Cable ALEXALEX

This report covers PVC

OCC 11119



Factory Mutual Engineering

P.O. Box 1350
Maryland Heights, Missouri 63043
Telephone: (314) 542-5443
Telex 044-7254
Telephone (314) 434-6830

February 4, 1972

Mr. J. E. Barlow, Process Engineer Plastics
Diamond Shamrock Chemical Company
P.O. Box 500
Deer Park, Texas 77536

Dear Mr. Barlow:

We have completed our testing of six samples of Diamond Shamrock's Proprietary PVC resins for combustion and explosion testing. These samples are the ones you sent in conjunction with your November 4, 1971 letter. These are the samples that were marked by name and with the letters A through F.

Our lab reports the following:

Combustion Test

These materials char, melt and burn in an ignition source by self extinguishing when the source is removed. Black smoke and flammable vapors are produced as well as flame and heat contribution to existing fire.

Explosion Test

In the Factory Mutual dust explosion apparatus under proper condition of ignition and dispersion and explosion cloud, could not be produced with these materials. Test were performed on the as received material, on the minus 100 mesh fill Five Section, and on double the normal sample size, both in the unvented condition and with a vent ratio equivalent to 1 sq. ft. per 180 cu. ft.

Thus, based on the above tests, ~~the material is considered to have no explosion potential.~~

We hope this covers the information you requested and wish to apologize for the lateness in getting this information to you; however, as the material was received during the Christmas rush our labs were not able to get to this before now.

We wish to thank you for your continued interest in these matters and if we can be of any further service, please advise.

Very truly yours,

J. L. Rosewell
St. Louis District

JLR:gm
7cc: ALL-Prov. - Morley
1cc: ALL-Cleveland

OCC 11120

Y. Factory Mutual system

J. Rosewell

St. Louis D. O.

J. P. Martin

FMRC

Diamond Shamrock Corporation
Daar Park, Texas
Index No. 74454

December 2, 1970

The three proprietary PVC powders received from W. W. Mason of the Insured have been tested for combustion hazard. The samples are identified by number and lot.

IDENTIFICATION ON SAMPLE BAGS

1. 5011-GR-02-AA lot ⁴30352

5011-GR-02-AA LOT 40352 (6 bags)

2. 5211-IN-01 lot 40327

5211-IN-01 LOT 40327 (white)

3. 52702-GR-02 lot 40342

52702-GR-02 LOT 40342 (grey)

Combustion Tests

These materials char in a match flame but do not ignite. They contribute fire to a Beker burner flame, melt, and char and burn briefly with black sooty smoke. All self-extinguish shortly after the ignition source is removed.

Sieve Sections

Approximately 60% of these materials are held on a 100 mesh sieve. About 40% are held on a 200 mesh sieve. A trace passes the 200 mesh sieve.

Dust Explosion Tests

Under favorable conditions of ignition and dispersion in the Factory Mutual dust explosion apparatus, an explosive dust cloud could not be produced with these materials either in the unvented condition or vented at a ratio of 1 sq ft to 180 cu ft.

The -100 +200 mesh portions were subjected to the same tests with no pressures being developed other than the normal blank pressure in the unvented sample.

JPM/ph

Memo - 1 cc

1 cc St. Louis D.O.

1 cc MFB

1 cc LE

1 cc Insp.

1 cc Ches Lab.

OCC 11121

J. E. Zimmerman IP-349

A. Kover

In response to your question regarding the customer request for a statement concerning the explosive properties of PVC resins, we submit the following:

The Deer Park PVC Plant submitted samples of three different resins to Factory Mutual Engineering Systems to have them tested for combustion and explosive properties in their explosion testing laboratories. Their laboratory report, contained in the attached letter to Deer Park, indicates that ~~the material is considered to be safe from any explosive potential.~~

It is my feeling that a copy of this letter should suffice to answer the customers request and put them at ease regarding this matter.

If you prefer that this letter and information be forwarded from our department rather than yours please call and advise.

A. Kover

A. Kover

AK:mec

Attach.

cc: R. E. Frey

bcc: W. Driscoll

THIS COPY FOR

Factory Mutual Engineering

P.O. Box 1350
Maryland Heights, Missouri 63043
Telephone: (314) 542-5531
Telex 044-7254
Telephone (314) 434-6330

February 4, 1972

Mr. J. E. Barlow, Process Engineer Plastics
Diamond Shamrock Chemical Company
P.O. Box 500
Deer Park, Texas 77536

Dear Mr. Barlow:

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We hope this covers the information you requested and wish to apologize for the lateness in getting this information to you; however, as the material was received during the Christmas rush our labs were not able to get to this before now.

We wish to thank you for your continued interest in these matters and if we can be of any further service, please advise.

Very truly yours,

J. L. Rosewell
St. Louis District

JLR:gm
7cc: ALL-Prov. - Morley
1cc: ALL-Cleveland

OCC 11123

Copies to:

Rod Becker - Deer Park (Plastics)
T. R. Lipcomb - Deer Park (Works Manager)
Lloyd Davison - Deer Park (Safety)

F:DP PVC Ind. Hya.

Interoffice Correspondence

To: Ted Guth - Deer Park (Plastics)
From: R. F. Adams - GCA (Environmental Services)
Date: January 23, 1978

D 118-C

Subject: Environmental Services: Industrial Hygiene/Safety
Plastics Plant - Deer Park Works
Explosive Characteristics of PVC Dust

Attached is information regarding explosibility tests which were run on various PVC dusts from the Delaware City Plant.

Note that the compounding area samples gave positive results in the tests, but that a very energetic ignition source was required to initiate the combustion. Also, it is significant that the explosion hazard can be reduced to near zero if the airborne dust levels can be kept below the Explosive Limit (about 65,000 mg/m³). Since measurements have shown the worst conditions to be lower than this by a factor of 100 or more, the hazard seems minimal in the Compounding Area.

Let me have your comments on the enclosed information, and if you have questions or want to test samples from Deer Park, please give me a call.

R. F. Adams

R. F. Adams

RFA/gg
Attachment

Environmental Services

File No.: 2609-3A

Route to: L. R. Heble 2

~~W. C. Totten 1~~

J. C. Molina

R. F. Adams

~~J. M. Van Winkle 4~~

~~B. H. Christensen 3~~

G. H. Engelbretson

A. R. Swift

Lab Technicians



Diamond Shamrock

OCC 11124

Diamond Shamrock Chemical Company

300 Union Commerce Building / Cleveland, Ohio 44115 / Telephone (216) 621-6100



April 5, 1972

Mr. James J. Kolchin
Alexander & Alexander, Inc.
1185 Avenue of the Americas
New York, New York 10036

Dear Jim:

Explosive Characteristics of PVC Dust

I must confess that when I reviewed Aetna's industrial hygiene study on the Delaware City Plastics plant dated April 5, 1971, I became concerned about the potential lead exposure to the employees, while largely overlooking the comment that the dust sample was found to be explosive when tested in their laboratories.

We have recently made a series of industrial hygiene studies on all of the dusty areas in the Plastics plant and are returning this week to check a specific compound that is reputed to be more dusty than others. We do not have the analytical results of this testing as yet, but should have the information complete in a week to 10 days.

Of an immediate concern, however, is the need to better evaluate the dust hazard from an explosive standpoint, and we are requesting the complete description of the testing that was performed at Actna last year and their measure of the explosive pressures developed during the testing.

In addition, by copy of this letter, I am asking Joe Zarembo if he could make arrangements through FIA to test several dust samples that we collected last week to verify the potential danger from explosion or fire. If FIA will not undertake to do this checking for us, we would like your recommendations on where we could send the samples and the type of information we should be asking for.

Sincerely yours,

DIAMOND SHAMROCK CHEMICAL COMPANY

R. E. Frey, Director
Safety & Environmental Engineering

REF:cts

cc: H. E. Birr
J. Zarembo
J. Zimmerman

OCC 11125