

REC'D AUG 25 2016



**SUB-SLAB DEPRESSURIZATION SYSTEM
OPERATION, MAINTENANCE & MONITORING PLAN**

**MARTINO'S MASTER DRY CLEANERS
3917 52ND STREET
KENOSHA, WI 53144
WDNR BRRTS# 02-30-552186**

August 22, 2016

Prepared For:

Martino's Master Dry Cleaners
7513 41st Avenue
Kenosha, WI 53142

Prepared By:

Environmental Forensic Investigations, Inc.
N16 W23390 Stone Ridge Drive, Suite G
Waukesha, WI 53188
Phone: (262) 290-4001
www.enviroforensics.com

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1.0 BACKGROUND

Sub-Slab Depressurization (SSD) systems were installed at 3909 and 3917 West 52nd Street in Kenosha, Wisconsin to mitigate potential vapor intrusion risk. At the time of installation, the properties were occupied by California Nails and Martino's Master Dry Cleaners (Martino's), respectively. The SSD systems are designed to depressurize the sub-slab space and prevent vapors from migrating into the buildings and affecting indoor air quality. The Wisconsin Department of Natural Resources (WDNR) requires that SSD systems be monitored and maintained to ensure ongoing effectiveness. Proper operation of the SSD systems is necessary to prevent exposure to the chemicals of concern via vapor intrusion.

1.1 Site History

The Site originally operated as a plant-on-premises dry cleaning facility. Undocumented and likely incidental releases of tetrachloroethene (PCE) occurred over time near the former dry cleaning machine location. The specific path to the subsurface was not identified; however, the PCE migrated vertically through soil beneath the Site building and adjoining commercial space causing soil, groundwater, and soil gas impacts that exceed WDNR health-based standards and screening levels.

2.0 CONTACTS

Property Owner: Dan Martino, Sr.
Address: 3917 52nd Street, Kenosha WI 53144
Contacts: Dan Martino, Sr.
Telephone #: 262-694-7858
Email: danmartinosr@aol.com

System Design and Installation: Vapor Protection Services
Address: 6544 Ferguson Street, Indianapolis, Indiana
Contact: Alex Watt
Contact/Telephone #: 317-252-5295

Consultant: EnviroForensics
Address: N16 W23390 Stone Ridge Dr., Suite G, Waukesha, WI 53188
Contacts: Brian Kappen, Project Manager; Wayne Fassbender, Senior Project Manager
Telephone #: 262-290-4001
Email: bkappen@enviroforensics.com or wfassbender@enviroforensics.com

WDNR Project Manager: Doug Cieslak
Address: 141 NW Barstow St, Room 180, Waukesha, WI 53188
Telephone #: 262-574-2182
Email: doug.cieslak@wisconsin.gov



3.0 SYSTEM DESIGN AND CONSTRUCTION

EnviroForensics contracted Vapor Protection Services (VPS) of Indianapolis, Indiana to design and install the SSD systems. The systems were installed during the week of June 6-10, 2016. Design and construction documentation for the SSD systems are provided in the June 28, 2016 *Installation Report* prepared by VPS, included as **Appendix A**.

The final system configurations are depicted on Figures 1 and 2 of the VPS Report. The systems are constructed with one (1) or two (2) extraction points connected via 4-inch PVC piping to separate fans mounted on the exterior of the building. Each system is equipped with ball valves and u-tube manometers on each extraction point, and a low pressure switch alarm. Photographs of system components are presented in Attachment 1 of the VPS report (see **Appendix A**).

4.0 SYSTEM OPERATION, MAINTENANCE, AND MONITORING

The property owner will be responsible for operation, maintenance, and monitoring (OM&M) of the SSD systems until the WDNR grants case closure for the Site.

4.1 System Operation

The fans are hardwired to dedicated circuits breakers in the electrical panel in each of the two (2) buildings. On/off switches are located on the exterior of the buildings near the fans. Operation of each system can be confirmed by inspecting the fan or checking the manometers. The systems are designed and intended to operate continuously.

4.2 System Monitoring

The Wisconsin Department of Natural Resources (WDNR) has issued recommendations for long-term SSD system monitoring programs (see October 7, 2015 Issues and Trends webinar at <http://dnr.wi.gov/topic/Brownfields/TrainingLibrary.html>). The recommendations have been adopted and incorporated into this OM&M Plan.

The following maintenance and monitoring procedures are required to be conducted annually during the winter months starting in 2016/2017:

1. Measure sub-slab pressure field extension (PFE). The PFE will be measured by connecting a hand-held digital manometer to sub-slab test ports installed in the floors. There are three (3) permanent test ports installed in each building as shown on **Figure 1**.
2. Measure flow rate in the piping leading to each fan using a thermo-anemometer inserted into ports in the piping.

3. Confirm vacuum induced by each extraction point by checking u-tube manometers.
4. Visually inspect the concrete floor penetration seals and all system components including fans, manometers, pressure switches, and piping connections. System inspection procedures are detailed in Attachment 4 of the VPS report (see **Appendix A**).

System monitoring requirements are summarized in the table below.

Parameter	Location	Equipment
Pressure Field Extension (PFE)	Sub-slab test ports	Digital manometer
Flow Rate	Extraction piping	Thermo-Anemometer
Pressure	Extraction piping	U-tube manometer
System condition	Multiple	Visual inspection

4.3 System Maintenance and Repairs

The mitigation fans are factory sealed and require no maintenance. In the event that a fan stops operating due to mechanical failure, the fan shall be replaced with an identical model or a fan with the same performance specifications. Replacement of fans should be handled by a mitigation contractor and/or an electrician. Maintenance and repair activities on other components, including piping and floor seals, can be performed by the environmental consultant or building maintenance personnel.

4.4 Inspection and Repair Logs

Inspection and repair logs shall be completed by the person or group responsible for OM&M of the SSD systems. The completed inspection log shall include the findings of the visual inspection, the flow rate measurement, and verification of complete PFE. The logs shall be kept on file by the environmental consultant and/or the property owner and made available to WDNR upon request. Blank logs are provided in **Appendix B**.

4.5 Notifications

The WDNR shall be notified at least 30 days before any actions are taken which would terminate or interrupt operation of the SSD systems for more than one week.

5.0 DECOMMISSIONING AND CONTINUING OBLIGATIONS

The SSD systems will be operated until they are no longer needed to prevent vapor intrusion. A Decommissioning Plan will be prepared, if appropriate. In general, decommissioning will be performed according to the following procedure:

- Re-assess the VI pathway in the buildings.
 - Turn all systems off for 30 days
 - Collect indoor air and sub-slab vapor samples
 - Re-start system after sampling
 - Repeat system shut-down sampling during winter months
- Submit Post-Closure Modification to WDNR with fees
- Turn the SSD systems off following WDNR approval

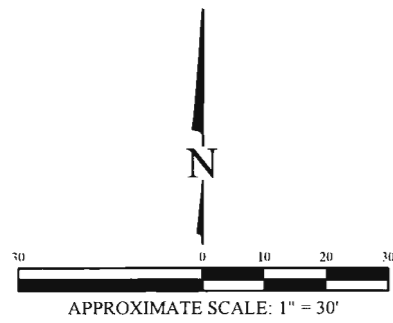
Reliance upon the SSD systems to mitigate vapor movement into the Site building at the time of case closure will result in a continuing obligation for the Martino's Master Dry Cleaners or any future property owner to operate and maintain the SSD system post-closure. Post-closure OM&M reporting shall be done using the Continuing Obligations Inspection and Maintenance Log (WDNR Form 4400-305).

FIGURES

Legend

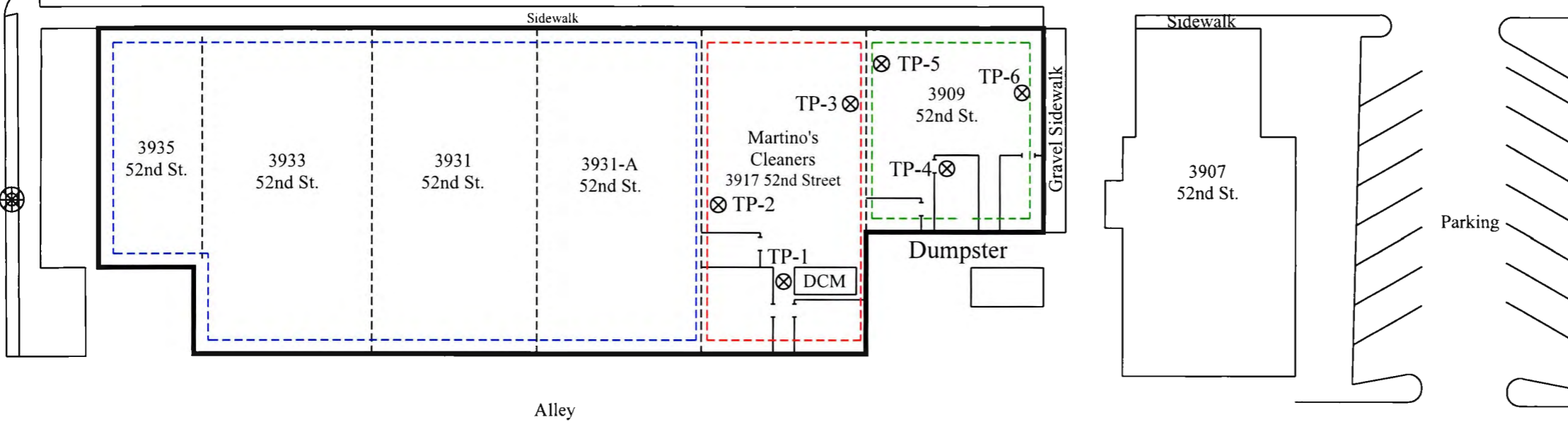
TP-1 ⊗ Pressure test port

- Slab foundation #1
- Slab foundation #2
- Slab foundation #3

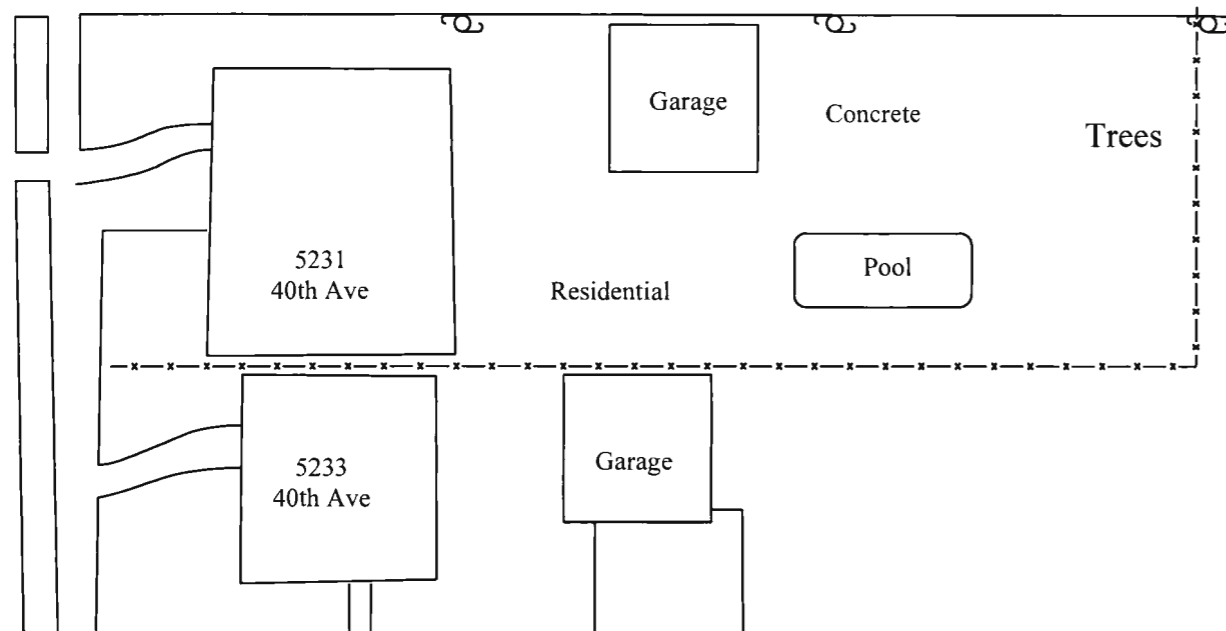


Parking Lot

40th AVENUE



Alley



Grass

PERMANENT TEST PORT LOCATIONS

Martino's Cleaners
3917 52nd Street
Kenosha, Wisconsin

Date:	2/12/16
Designed:	EB
Drawn:	EB
Checked:	BK
DWG file:	6190-0813

ENVIROforensics
ENVIRONMENTAL FORENSIC INVESTIGATIONS, INC.
602 N. Capitol Ave., Ste. 210 • Indianapolis, IN 46204
EnviroForensics.com

Figure	1
Project	6190



APPENDIX A

Vapor Mitigation System Installation Report



VAPOR
PROTECTION
SERVICES

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Prepared for: **Brain Kappen**
EnviroForensics

Site: **Martino's Dry Cleaners/California Nails**
3909 & 3917 W. 52nd St.
Kenosha, WI 53144

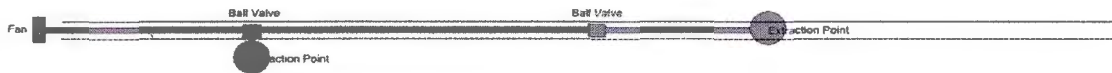
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VAPOR
PROTECTION
SERVICES

INSTALLATION REPORT



June 28, 2016

VPS Proposal No. 201604214
Sub-Slab Depressurization System (SSDS)
Martino's Dry Cleaners/
California Nails
3909-3917 W 52nd St.
Kenosha, WI 53144

Mr. Brian Kappen
EnviroForensics
N16 W23390 Stone Ridge Drive, Suite G
Waukesha, WI 53188
414.326.4412
Bkappen@enviroforensics.com

Vapor Mitigation System Installation Report
3909-3917 W 52nd St.
Kenosha, WI 53144

Date of SSDS Installation: June 5, 2016 to June 10, 2016

Vapor Protection Services (VPS) is pleased to provide a Vapor Mitigation System Installation Report that summarizes the scope of services performed at 3909 and 3917 W. 52nd St., Kenosha, WI (Site). The scope of services performed at the Site is detailed in VPS Proposal No. 201604214 and is noted below.

Scope of Service for California Nails, 3909 W. 52nd St.:

- To determine ROI and Pathway Evaluation, VPS performed Advanced Diagnostics with two (2) extraction points and nine (9) test points.
- VPS decommissioned an existing SSDS.
- VPS installed a sub-slab depressurization system (SSDS) with one (1) RP265 RadonAway Model fan to depressurize the soil beneath approximately 2000 square feet of concrete slab to meet performance criteria.

- The SSDS utilizes (1) Extraction point, approximately 100' of 4 inch schedule 40 PVC piping, and (1) model RP265 fan with (1) system alarms, (1) u-tube manometers, and (1) ball valve (u-tube and ball valves were installed on the extraction point stack).
- The fan was hardwired to a dedicated circuit breaker in an existing electrical panel with dedicated on/off switches located next to the mitigation fan.
- Results of post PFE testing indicate the system applies negative pressure across the entire building. Pre and post PFE readings are depicted on Figure 1.

Scope of Service for Martino's Cleaners, 3917 W. 52nd St.:

- To determine ROI and Pathway Evaluation, VPS performed Advanced Diagnostics with two (2) extraction points and twelve (12) test points.
- VPS decommissioned an existing SSDS.
- VPS utilized a sub-slab depressurization system (SSDS) and one (1) RadonAway Model RP265 fan to depressurize the soil beneath approximately 2340 square feet of concrete slab to meet performance criteria.
- The SSDS utilizes (2) Extraction points, approximately 150' of 4 inch schedule 40 PVC piping, and (1) model RP265 fan with (1) system alarm, (2) u-tube manometers, and (2) ball valve (u-tube and ball valves were installed on the extraction point stack).
- The fans were hardwired to a dedicated circuit breaker in an existing electrical panel with dedicated on/off switches located next to the mitigation fan.
- Results of post PFE testing indicate the system applies negative pressure across the entire building. Pre and post PFE readings are depicted on Figure 2.

Please Note:

- A drawing depicting the SSDS layout is included as **Figure 1 & Figure 2**.
- Photos taken during the installation have been included as **Attachment 1**.
- VPS's radon mitigation certification is included as **Attachment 2**.
- VI Mitigation Installation Checklist is included as **Attachment 3**.
- O & M manual is included as **Attachment 4**.
- Annual Operating Costs is included as **Attachment 5**.
- RadonAway fan 5 year warranty is included as **Attachment 6**.
- MSDS sheet is included as **Attachment 7**.

Conclusion:

VPS submits this report as written and visual documentation that the contracted work scope for vapor mitigation as detailed in Proposal No. 201604214 was successfully completed to the approval of client onsite. Please do not hesitate to contact me with any questions you might have regarding this report.

Respectfully Submitted,



Alex Watt
Director of Technical Services
alex@vaporprotection.com
Vapor Protection Services®
6544 Ferguson Street
Indianapolis, IN 46220
317.252.5295
www.vaporprotection.com
NRPP Certification #108383RMT
Indiana Mitigator License #RTM00783
Indianapolis Contractor License #GL00047

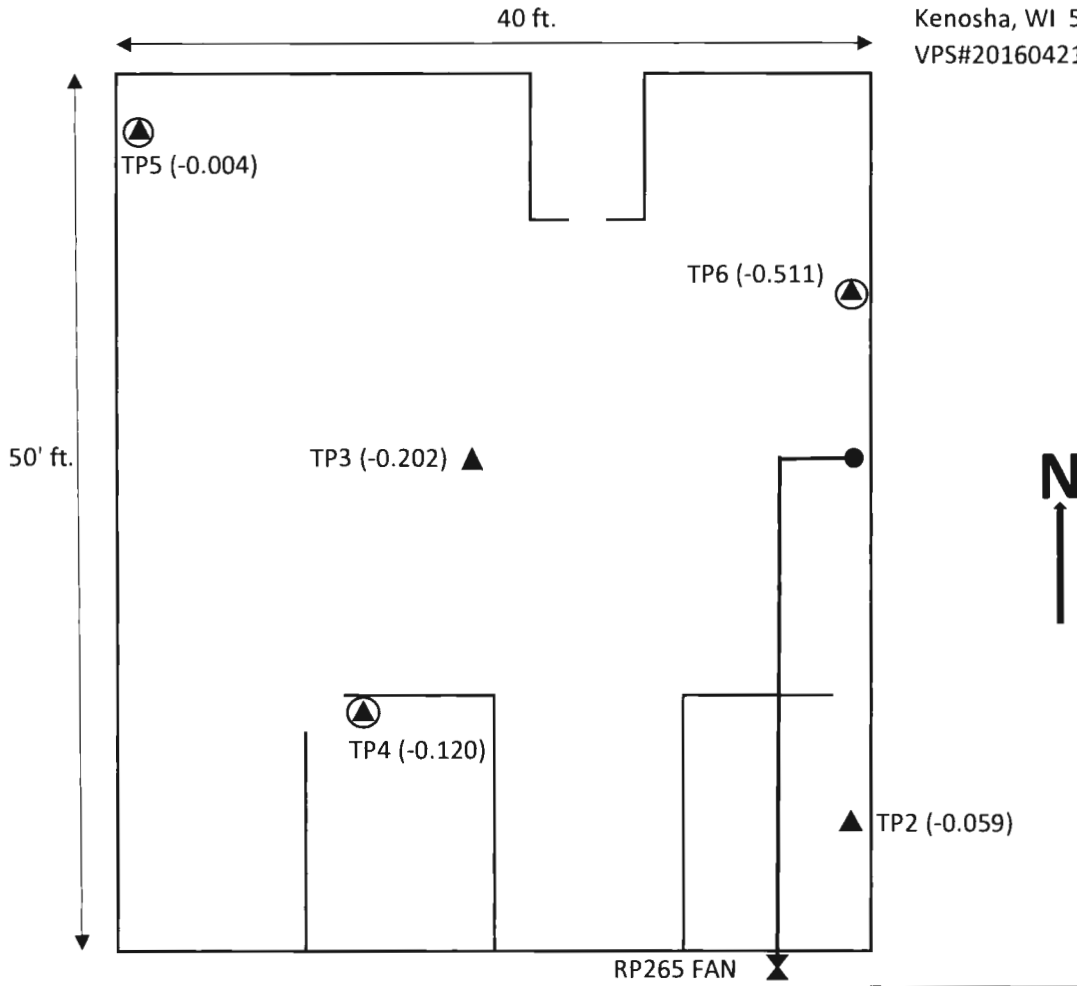
Figure 1
System Layout
California Nails

Prepared for: EnviroFornesics
 Brian Kappen

Site: Martino's Dry Cleaners-
 California Nails
 3909 52nd St.
 Kenosha, WI 53144
 VPS#201604214



VAPOR
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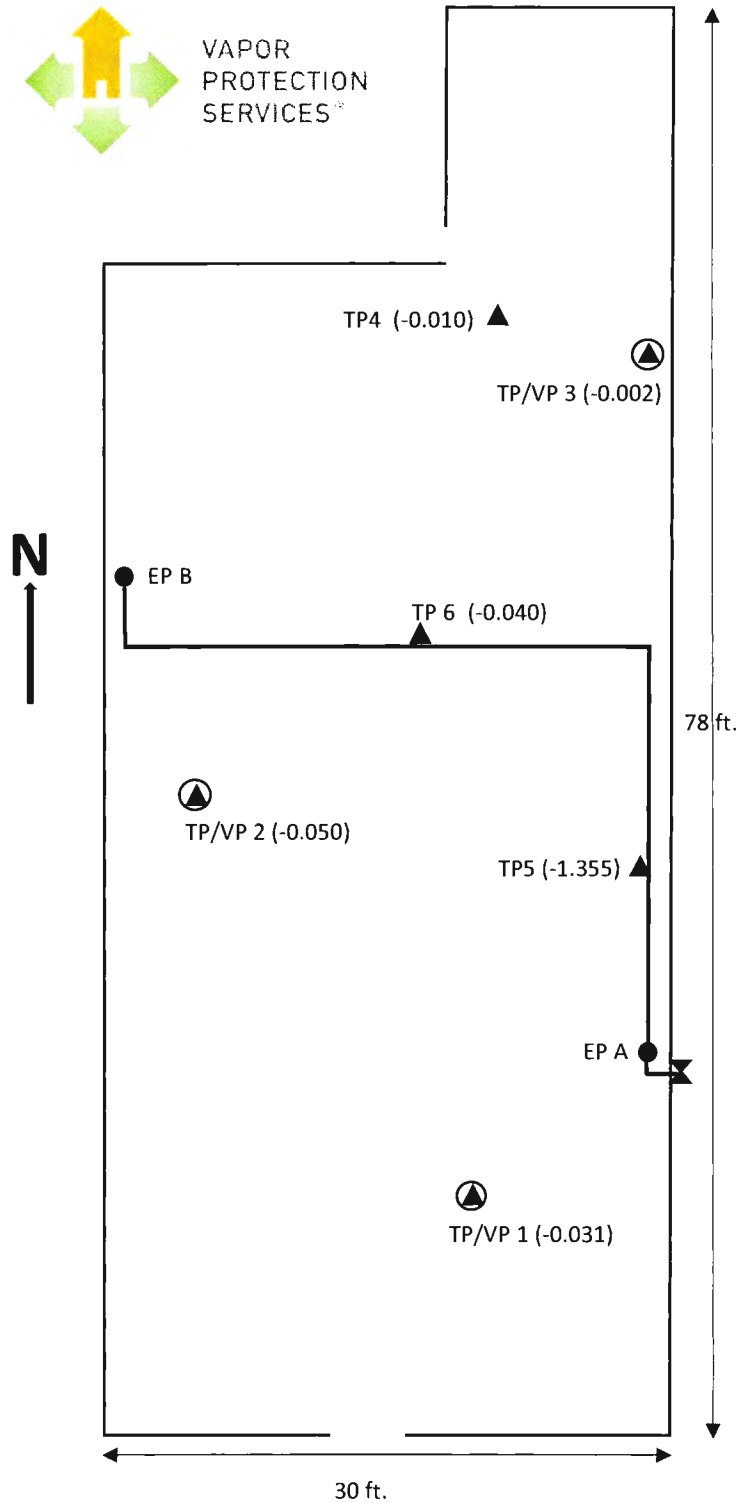
Test Point (TP 1, 2 etc.)	▲
Extraction Point (EP A, B etc.)	●
Test Point/Vapor Pin (TP/VP etc.) w/Post install readings	⊙
RP265 Fan	⊗
PVC Pipe Run	—

Pre Install PFE Readings in inches of Water Column	
Test Point	Pre-Install PFE
TP6	-2.530
TP2	-0.360
TP3	-0.402
TP5	-0.012
TP4	-0.529

Figure 2
System Layout
Martino's Dry Cleaners

Prepared for: EnviroFornesics
 Brian Kappen

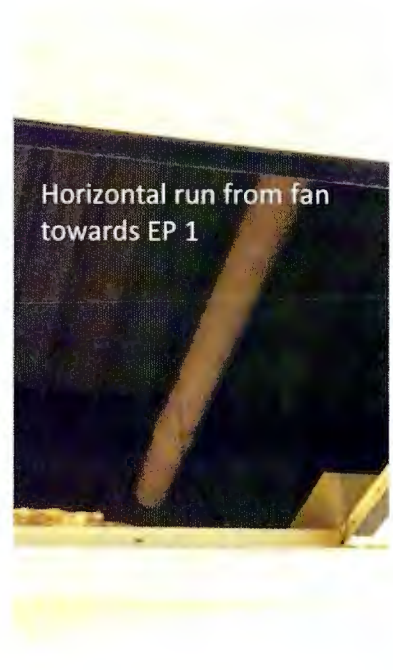
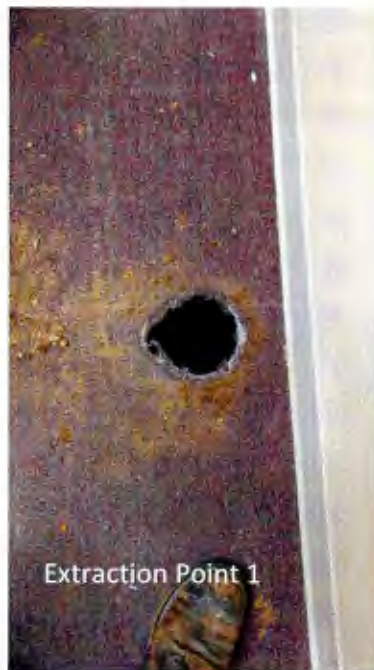
Site: Martino's Dry Cleaners
 3917 52nd St.
 Kenosha, WI 53144
 VPS#201604214



Pre Install PFE Readings in inches of Water Column		
Test Point		Pre-Install PFE
TP1		-0.106
TP2		0.000
TP3		-0.006
TP4		-0.003
TP5		-0.003
TP6		-0.023

Test Point (TP 1, 2 etc.)	▲
Extraction Point (EP A, B etc.)	●
Test Point/Vapor Pin (TP/VP etc.) w/Post install readings	⊕
RP265 Fan	⊗
PVC Pipe Run	—

**Attachment 1
Install Photos
California Nails**



Attachment 1 (cont'd)
Install Photos
Martino's Dry Cleaners



Patched slab and wall penetration holes from decommissioned system



Extraction Point A



Sealed Extraction Point B



Sealed floor and wall joint (east wall) & cracks



EP A with system indicator and labels



Hard wired RP265 fan with shut off switch

**Attachment 2
Mitigation Certifications**



**Attachment 2 (cont'd)
Mitigation Certification**



Indiana State Department of Health
Lead and Healthy Homes
2 N. Meridian Street, 5J
Indianapolis, Indiana 46204 (317) 234-4423

Primary Radon Tester License

Certificate Number	Status	Expire Date
RTP00763	Active	12/31/2017

Alex H. Watt

Jerome M. Adams, MD, MPH
State Health Commissioner
Indiana State Department of Health



Indiana State Department of Health
Lead and Healthy Homes
2 N. Meridian Street, 5J
Indianapolis, Indiana 46204 (317) 234-4423

Radon Mitigator License

Certificate Number	Status	Expire Date
RTM00783	Active	12/31/2018

Alex H. Watt

Jerome M. Adams, MD, MPH
State Health Commissioner
Indiana State Department of Health

**Attachment 3
Checklist**



VAPOR
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Company: **EnviroForensics**
 Name: **Brain Kappen**
 Address: **3909-3917 52nd St.
 Kenosha, WI**
 Proposal Number: **201604214**
 Date: **6/10/2016**
 Fan Make/Model: **(2) RP265**

Mitigation Inspection Checklist

Piping	Yes	No	N/A
Are all pipes solid schedule 40 PVC?	X		
Are all pipe connections permanently sealed?	X		
Are the system pipes supported by existing ductwork, piping, or any equipment?		X	
Do any of the system pipes obstruct windows, doors or service access points?		X	
Are horizontal pipe supports installed at 6- 4 foot increments?	X		
Are vertical pipe runs supported properly in accordance to building code?	X		
Extraction point vertical pipes supported and sealed permanently?	X		
Do Horizontal pipes slope toward extraction pits for condensate drainage?	X		
Are permanent test ports installed on extraction point suction pipes?		X	

Fans	Yes	No	N/A
Is the fan level and properly supported to prevent unnecessary vibration?	X		
Does the fan have a condensate by-pass installed?	X		
Has the fan been mounted to piping using flexible connections?	X		
Is the exhaust vent pipe at least 10 feet above grade, 10 feet from any doors or windows, and 2 feet above the top of any opening into the conditioned space?	X		
If vent pipe exits through a roof penetration, does it extend at least 12 inches above the surface?			X
If vent pipe runs along the exterior wall, is it supported by brackets placed at least every 8 feet?	X		
Is the vent stack made of schedule 40 PVC piping?	X		

Vapor Barrier	Yes	No	N/A
Is crawl space(s) free of debris and obstruction that may prevent proper installation of vapor retarder or sub-slab depressurization system?			X
Has sub-membrane depressurization system been installed?			X
Was 6mil or thicker reinforced skim used as the vapor retarder?			X
Are heavy traffic areas and/or storage areas protected from tears and punctures by carpet or heavy felt padding?			X
Are all membrane seams overlapped at least 12 inches and sealed properly?			X
Has the membrane been secured to walls with tape, furring strips, and/or caulk?			X
Has a perforated/slotted pipe been installed under the membrane and above the soil for proper de-pressurization?			X
Does suction pipe have permanent test port installed?			X
Are all utility, foundation, or other penetrations sealed properly?			X

**Attachment 3 (cont'd)
Checklist**

Electrical	Yes	No	N/A
Has electrical wiring/switching been performed by a licensed electrician?	X		
Is the fan's power supply shutoff switch mounted in a weather tight enclosure?	X		
Is the circuit breaker clearly labeled "Radon Mitigation System"?	X		
Has a run-time meter been installed, and is it in a weather tight enclosure?		X	
Has a KW meter been installed?		X	

Sump Pit			
Is there a sump pit(s) in the basement or crawl space?			X
Does sump pit have impermeable cover attached with proper sealant?			X
Are sump lid penetrations properly sealed?			X
Has sump pit been used as an extraction point?			X
Does sump lid have a clear view port for pump/pit observation and maintenance?			X

Labels and Monitors			
Does each suction pipe have a u-tube manometer or magnehelic gage to measure pressure?	X		
Does each suction pipe have a permanent test port?		X	
Has an audible alarm to inform of possible system malfunction been installed?	X		
Are labels placed on pipes, membrane(s), and prominent locations to identify system components?	X		
Does label include name and number of person(s) to contact in case of system emergency?	X		

Testing and Sealing			
Has PFE testing been completed to verify system performance?	X		
Has foundation been smoke tested after mitigation system installation?		X	
Have leaks in slab, walls or membrane been sealed properly?	X		

Report			
Has an as built drawing been completed depicting system installation?	X		
Have all test point reading been recorded and inserted into the drawing?	X		
Has the system installation been recorded with photographs?	X		

Notes:	
---------------	--

Attachment 4

Vapor Mitigation System Operation and Maintenance

We advise consultants, maintenance personnel or property owners to conduct routine visual inspections of all SSDS to verify that vapor mitigation system components are operating properly. The inspection should include but not be limited to the following:

- Observe the u tube or magnehelic gauges for pressure indication; a pressure of '0' indicates that there is a problem with system piping or fan operation.
- Observe the mitigation fan(s) and note any abnormal sounds or noises coming from the fan including buzzing, scraping, rattling, or et cetera. If any abnormal noises or sounds are audible, contact VPS.
- Most mitigation fans are factory sealed and designed to be maintenance free for the life of the fan. Should the fan's casing be opened or the factory seal broken, any service warranty may be voided. Factory maintenance documentation has been provided to consultant with recommended schedule for maintenance of fans if required.
- Inspect the PVC piping of the system for damage or cracks. If any damage occurs to the PVC piping, contact VPS Piping supports and Hangers should also be inspected for wear and integrity.
- Roof penetrations for system exhaust piping should be inspected to assure no moisture or other intrusion is apparent.
- Sub-membrane depressurization system (SMDS) components should also be periodically inspected to assure proper performance. Should a vapor barrier or membrane become damaged, loss of system pressure can occur affecting overall system performance. Tears should be repaired properly using approved methods.
- Any significant changes to building or structure can and may affect system performance. VPS should be advised of planned changes beforehand to avoid any possible performance issues or system failure.

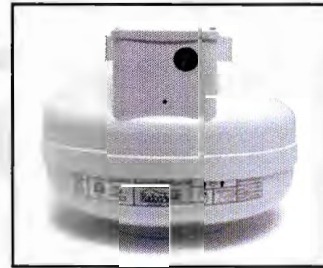
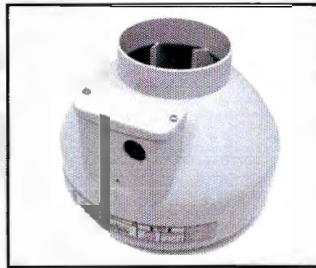
Contact VPS for Additional Service & Maintenance should any occasion arise that may causes concern that the SSDS or SMDS is not functioning properly as vapor intrusion may no longer be mitigated to meet performance criteria provided to VPS by consultant.

**Attachment 5
ANNUAL OPERATING COSTS**

<u>RADONAWAY FANS</u>	<u>AVERAGE KWH</u>	<u>AVERAGE COST PER YEAR</u>
RP140	\$0.0894	\$13.31
RP145	\$0.0894	\$42.29
RP260	\$0.0894	\$48.55
RP265	\$0.0894	\$88.50
RP380	\$0.0894	\$101.03
SF180	\$0.0894	\$42.29
GP201	\$0.0894	\$39.16
GP301	\$0.0894	\$56.39
GP401	\$0.0894	\$66.57
GP500	\$0.0894	\$78.31
GP501	\$0.0894	\$82.23
XP151	\$0.0894	\$40.72
XP201	\$0.0894	\$43.07
XP261	\$0.0894	\$66.57
HS2000	\$0.0894	\$164.46
HS3000	\$0.0894	\$117.47
HS5000	\$0.0894	\$250.61
<u>FANTECH FANS</u>		
HP2133	\$0.0894	\$13.31
HP2190	\$0.0894	\$56.78
HP175	\$0.0894	\$42.68
HP190	\$0.0894	\$56.78
HP220	\$0.0894	\$92.80
FR250	\$0.0894	\$101.03
<u>PLASTEC VENTILATION</u>		
STORM 12		\$250.00
PLASTEC 20		\$250.00



The World's Leading
Radon Fan Manufacturer



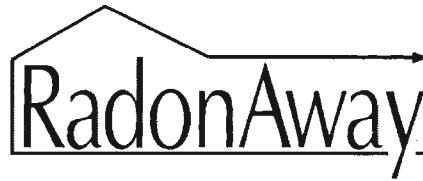
RP Series

Installation & Operating Instructions

RadonAway

3 Saber Way | Ward Hill, MA 01835

www.radonaway.com

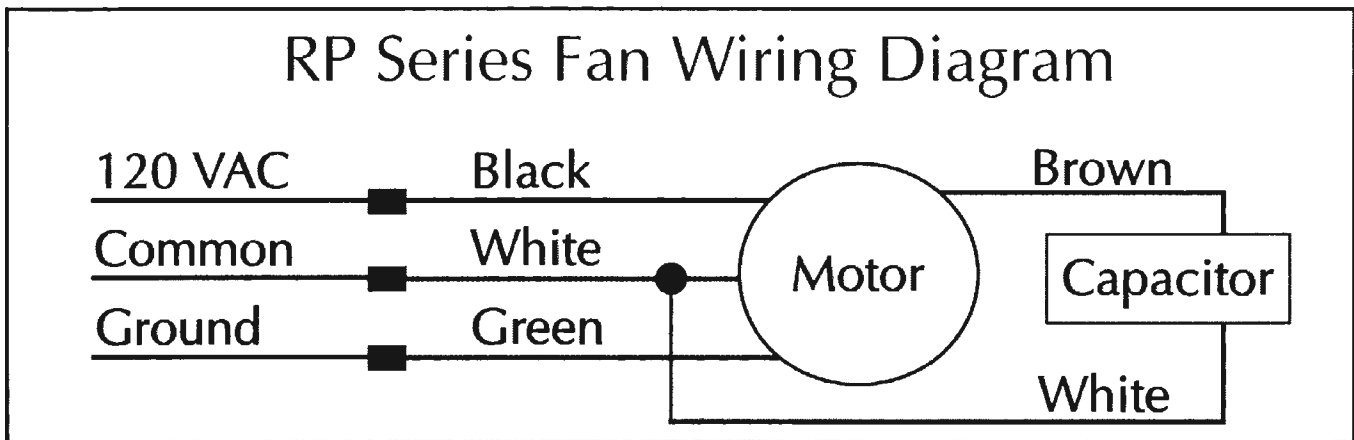


Series Fan Installation & Operating Instructions

Please Read and Save These Instructions.

**DO NOT CONNECT POWER SUPPLY UNTIL FAN IS COMPLETELY INSTALLED.
MAKE SURE ELECTRICAL SERVICE TO FAN IS LOCKED IN "OFF" POSITION.
DISCONNECT POWER BEFORE SERVICING FAN.**

1. **WARNING!** Do not use fan in hazardous environments where fan electrical system could provide ignition to combustible or flammable materials.
2. **WARNING!** Do not use fan to pump explosive or corrosive gases. See Vapor Intrusion Application Note #AN001 for important information on VI applications. RadonAway.com/vapor-intrusion
3. **WARNING!** Check voltage at the fan to insure it corresponds with nameplate.
4. **WARNING!** Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.
5. **NOTICE!** There are no user serviceable parts located inside the fan unit.
Do NOT attempt to open. Return unit to the factory for service.
6. All wiring must be performed in accordance with the National Fire Protection Association's (NFPA) National Electrical Code, Standard #70"-current edition for all commercial and industrial work, and state and local building codes. All wiring must be performed by a qualified and licensed electrician
7. **WARNING!** Do not leave fan unit installed on system piping without electrical power for more than 48 hours. Fan failure could result from this non-operational storage.
8. **WARNING!** TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:
 - a) Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
 - b) Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.





RP Series

RP140	p/n 23029-1
RP145	p/n 23030-1
RP260	p/n 23032-1
RP265	p/n 23033-1
RP380	p/n 28208

1.0 SYSTEM DESIGN CONSIDERATIONS

1.1. INTRODUCTION

The RP Series Radon Fans are intended for use by trained, professional, certified/licensed Radon mitigators. The purpose of this instruction is to provide additional guidance for the most effective use of an RP Series Fan. This instruction should be considered as a supplement to EPA/radon industry standard practices, state and local building codes and state regulations. In the event of a conflict, those codes, practices and regulations take precedence over this instruction.

1.2. FAN SEALING

The RP Series Fans are factory sealed, no additional caulk or other materials are required to inhibit air leakage.

1.3. ENVIRONMENTALS

The RP Series Fans are designed to perform year-round in all but the harshest climates without additional concern for temperature or weather. For installations in an area of severe cold weather, please contact RadonAway for assistance. When not in operation, the fan should be stored in an area where the temperature is never less than 32 degrees F. or more than 100 degrees F.

1.4. ACOUSTICS

The RP Series Fan, when installed properly, operates with little or no noticeable noise to the building occupants. The velocity of the outgoing air should be considered in the overall system design. In some cases the "rushing" sound of the outlet air may be disturbing. In these instances, the use of a RadonAway Exhaust Muffler is recommended.

(To ensure quiet operation of ENERGY STAR qualified in-line and remote fans, each fan shall be installed using sound attenuation techniques appropriate for the installation. For bathroom and general ventilation applications, at least 8 feet of insulated flexible duct shall be installed between the exhaust or supply grille(s) and the fan).
RP Series fans are not suitable for kitchen range hood remote ventilation applications.

1.5. GROUND WATER

In the event that a temporary high water table results in water at or above slab level, water may be drawn into the riser pipes thus blocking air flow to the RP Series Fan. The lack of cooling air may result in the fan cycling on and off as the internal temperature rises above the thermal cutoff and falls upon shutoff. Should this condition arise, it is recommended that the fan be turned off until the water recedes allowing for return to normal operation.

1.6. SLAB COVERAGE

The RP Series Fan can provide coverage up to 2000+ sq. ft. per slab penetration. This will primarily depend on the sub-slab material in any particular installation. In general, the tighter the material, the smaller the area covered per penetration. Appropriate selection of the RP Series Fan best suited for the sub-slab material can improve the slab coverage. The RP140/145/155 are best suited for general purpose use. The RP260 can be used where additional airflow is required and the RP265/380 is best suited for large slab, high airflow applications. Additional suction points can be added as required. It is recommended that a small pit (5 to 10 gallons in size) be created below the slab at each suction hole.

**Attachment 6 (cont'd)
Fan Warranty**

1.7. CONDENSATION & DRAINAGE

Condensation is formed in the piping of a mitigation system when the air in the piping is chilled below its dew point. This can occur at points where the system piping goes through unheated space such as an attic, garage or outside. The system design must provide a means for water to drain back to a slab hole to remove the condensation. The RP Series Fan **MUST** be mounted vertically plumb and level, with the outlet pointing up for proper drainage through the fan. Avoid mounting the fan in any orientation that will allow water to accumulate inside the fan housing. The RP Series Fans are **NOT** suitable for underground burial.

For RP Series Fan piping, the following table provides the minimum recommended pipe diameter and pitch under several system conditions.

Pipe Dia.	Minimum Rise per Ft of Run*				
	@25 CFM	@50 CFM	@100 CFM	@200 CFM	@300 CFM
6"	-	3/16	1/4	3/8	3/4
4"	1/8	1/4	3/8	2 3/8	-
3"	1/4	3/8	1 1/2	-	-



*Typical RP1xx/2xx Series Fan operational flow rate is 25 - 90 CFM On 3" and 4" pipe.
(For more precision, determine flow rate by measuring Static Pressure, in WC, and correlate pressure to flow in the performance chart in the addendum.)

Under some circumstances in an outdoor installation a condensate bypass should be installed in the outlet ducting as shown. This may be particularly true in cold climate installations which require long lengths of outlet ducting or where the outlet ducting is likely to produce large amounts of condensation because of high soil moisture or outlet duct material. Schedule 20 piping and other thin-walled plastic ducting and Aluminum downspout will normally produce much more condensation than Schedule 40 piping.



The bypass is constructed with a 45 degree Wye fitting at the bottom of the outlet stack. The bottom of the Wye is capped and fitted with a tube that connects to the inlet piping or other drain. The condensation produced in the outlet stack is collected in the Wye fitting and drained through the bypass tube. The bypass tubing may be insulated to prevent freezing.

Wye



Fan



1.8. SYSTEM MONITOR & LABEL

A System Monitor, such as a manometer (P/N 50006-1) or audible alarm (P/N 28001-2) is required to notify the occupants of a fan system malfunction. A System Label (P/N 15022) with instructions for contacting the installing contractor for service and also identifying the necessity for regular radon tests to be conducted by the building occupants, must be conspicuously placed where the occupants frequent and can see the label.



Attachment 6 (cont'd) Fan Warranty

1.9. VENTILATION

If used as a ventilation Fan any type of ducting is acceptable, however, flexible nonmetallic ducting is recommended for easy installation and quieter operation. Insulated flexible ducting is highly recommended in cold climates to prevent the warm bathroom air from forming condensation in the ducting where it is exposed to colder attic air. The outlet of the fan should always be ducted to the outside. Avoid venting the outlet of the fan directly into an attic area. The excess moisture from the bathroom can cause damage to building structure and any items stored in the attic. Multiple venting points may be connected together using a "T" or "Y" fitting. Ideally Duct should be arranged such that equal duct lengths are used between intake and "T" or "Y" fitting, this will result in equal flow rates in each intake branch. If adjustable intake grilles are used on multi-intake systems then the opening on each grill should be equal in order to minimize noise and resistance. Straight smooth runs of rigid metal ducting will present the least resistance and maximize system performance. The Equivalent Length of Rigid Metal Ducting resulting in .2" WC pressure loss for each Fan Model is provided in the specification section of these Instructions. Flexible ducting, if used, must always be as close to being fully extended as possible. Formed rigid metal duct elbows will present the least resistance and maximize system performance, recommended bend radius of elbow is at least 1.5 x duct diameter.

RP Series fans are not suitable for kitchen range hood remote ventilation applications. For quietest performance, the fan should be mounted further away from the inlet duct, near the outside vent. A minimum distance of 8 feet is recommended between the fan or T/Y of a multi-intake system and intake grille(s).

Backdraft dampers allow airflow in only one direction preventing cold/hot drafts from entering the vented area and minimize possible condensation and icing within the system while the fan is not operating. Backdraft dampers are highly recommended at each intake grille for bathroom ventilation in all cold climate installations. Installation instructions are included with Spruce back draft dampers.

1.10. ELECTRICAL WIRING

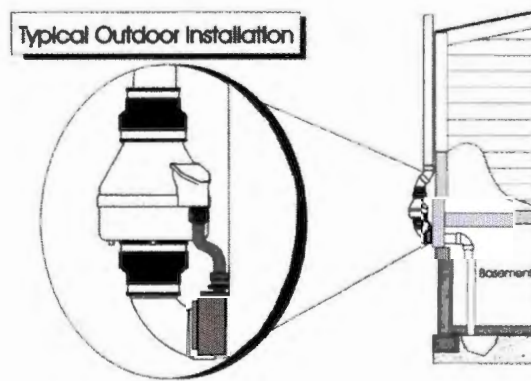
The RP Series Fans operate on standard 120V 60 Hz. AC. All wiring must be performed in accordance with the National Fire Protection Association's (NFPA) "National Electrical Code, Standard #70"-current edition for all commercial and industrial work, and state and local building codes. All wiring must be performed by a qualified and licensed electrician. Outdoor installations require the use of a U.L. listed watertight conduit. Ensure that all exterior electrical boxes are outdoor rated and properly sealed to prevent water penetration into the box. A means, such as a weep hole, is recommended to drain the box.

1.11. SPEED CONTROLS

The RP Series Fans are rated for use with electronic speed controls, however, they are generally not recommended. If used, the recommended speed control is Pass & Seymour Solid State Speed Control Cat. No. 94601-I.

2.0 INSTALLATION

The RP Series Fan can be mounted indoors or outdoors. (It is suggested that EPA recommendations be followed in choosing the fan location.) The RP Series Fan may be mounted directly on the system piping or fastened to a supporting structure by means of optional mounting bracket



**Attachment 6 (cont'd)
Fan Warranty**

2.1 MOUNTING

Mount the RP Series Fan vertically with outlet up. Insure the unit is plumb and level. When mounting directly on the system piping assure that the fan does not contact any building surface to avoid vibration noise.

2.2 MOUNTING BRACKET (optional)

The RP Series Fan may be optionally secured with the RadonAway P/N 25007-2 (25033 for RP385) mounting bracket. Foam or rubber grommets may also be used between the bracket and mounting surface for vibration isolation.

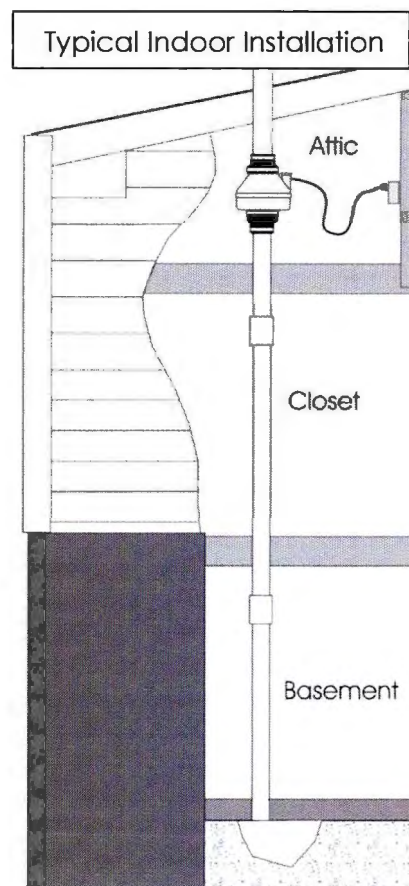
2.3 SYSTEM PIPING

Complete piping run, using flexible couplings as means of disconnect for servicing the unit and vibration isolation. As the fan is typically outside of the building thermal boundary, and is venting to the outside, installation of insulation around the fan is not required.

2.4 ELECTRICAL CONNECTION

Connect wiring with wire nuts provided, observing proper connections (See Section 1.10): Note that the fan is not intended for connection to rigid metal conduit.

Fan Wire	Connection
Green	Ground
Black	AC Hot
White	AC Common



2.5 VENT MUFFLER (optional)

Install the muffler assembly in the selected location in the outlet ducting. Solvent weld all connections. The muffler is normally installed at the end of the vent pipe.

2.6 OPERATION CHECKS & ANNUAL SYSTEM MAINTENANCE

- _____ **Verify** all connections are tight and **leak-free**.
- _____ **Insure** the RP Series Fan and all ducting is secure and vibration-free.
- _____ **Verify** system vacuum pressure with manometer. **Insure** vacuum pressure is within normal operating range and **less than** the maximum recommended operating pressure.
*(Based on sea-level operation, at higher altitudes reduce by about 4% per 1000 Feet.)
 (Further reduce Maximum Operating Pressure by 10% for High Temperature environments)
 See Product Specifications. If this is exceeded, increase the number of suction points.*
- _____ **Verify Radon levels by testing to EPA protocol.**

**Attachment 6 (cont'd)
Fan Warranty**

RP SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the RP Series Fan:

Typical CFM Vs Static Pressure "WC									
	0"	.25"	.5"	.75"	1.0"	1.25"	1.5"	1.75"	2.0"
RP140	135	103	70	14	-	-	-	-	-
RP145	166	146	126	104	82	61	41	21	3
RP260	272	220	176	138	103	57	13	-	-
RP265	334	291	247	210	176	142	116	87	52
RP380*	497	401	353	281	220	176	130	80	38

* Tested with 6" inlet and discharge pipe.

Power Consumption 120 VAC, 60Hz 1.5 Amp Maximum			Maximum Recommended Operating Pressure* (Sea Level Operation)**	
RP140	17 - 21	watts	RP140	0.8" W.C.
RP145	41 - 72	watts	RP145	1.7" W.C.
RP260	52 - 72	watts	RP260	1.5" W.C.
RP265	91 - 129	watts	RP265	2.2" W.C.
RP380	95 - 152	watts	RP380	2.0" W.C.

*Reduce by 10% for High Temperature Operation

**Reduce by 4% per 1000 feet of altitude

	Size	Weight	Inlet/Outlet	L.2
RP140	8.5H" x 9.7" Dia.	5.5 lbs.	4.5" OD (4.0" PVC Sched 40 size compatible)	25
RP145	8.5H" x 9.7" Dia.	5.5 lbs.	4.5" OD (4.0" PVC Sched 40 size compatible)	15
RP260	8.6H" x 11.75" Dia.	5.5 lbs.	6.0" OD	48
RP265	8.6H" x 11.75" Dia.	6.5 lbs.	6.0" OD	30
RP380	10.53H" x 13.41" Dia.	11.5 lbs.	8.0" OD	57

L.2 = Estimated Equivalent Length of Rigid Metal Ducting resulting in .2in WC pressure loss for Duct Size listed. Longer Equivalent Lengths can be accommodated at Flows Lower than that at .2in WC pressure loss (see CFM Vs Static Pressure "WC Table).

Recommended ducting: 3" or 4" RP1xx/2xx, 6" RP380, Schedule 20/40 PVC Pipe

Mounting: If used for Ventilation use 4", 6" or 8" Rigid or Flexible Ducting

Mount on the duct pipe or with optional mounting bracket.

Storage temperature range: 32 - 100 degrees F.

Normal operating temperature range: -20 - 120 degrees F.

Maximum inlet air temperature: 80 degrees F.

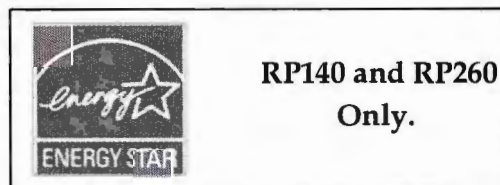
Continuous Duty

Class B Insulation

Thermally Protected

3000 RPM

Rated for Indoor or Outdoor Use



IN020 Rev M

Page 7 of 8

Attachment 6 (cont'd)
Fan Warranty
IMPORTANT INSTRUCTIONS TO INSTALLER

Inspect the GP/XP/XR/RP Series Fan for shipping damage within 15 days of receipt. Notify **RadonAway of any damages immediately**. RadonAway is not responsible for damages incurred during shipping. However, for your benefit, RadonAway does insure shipments.

There are no user serviceable parts inside the fan. **Do not attempt to open**. Return unit to factory for service.

Install the GP/XP/XR/RP Series Fan in accordance with all EPA standard practices, and state and local building codes and state regulations.

Provide a copy of this instruction or comparable radon system and testing information to the building occupants after completing system installation.

WARRANTY

Subject to any applicable consumer protection legislation, RadonAway warrants that the GPX01/XP/XR/RP Series Fan (the "Fan") will be free from defects in materials and workmanship for a period of 90 days from the date of purchase (the "Warranty Term").

RadonAway will replace any Fan which fails due to defects in materials or workmanship. The Fan must be returned (at Owner's cost) to the RadonAway factory. Any Fan returned to the factory will be discarded unless the Owner provides specific instructions along with the Fan when it is returned regardless of whether or not the Fan is actually replaced under this warranty. Proof of purchase must be supplied upon request for service under this Warranty.

This Warranty is contingent on installation of the Fan in accordance with the instructions provided. This Warranty does not apply where any repairs or alterations have been made or attempted by others, or if the unit has been abused or misused. Warranty does not cover damage in shipment unless the damage is due to the negligence of RadonAway.

5 YEAR EXTENDED WARRANTY WITH PROFESSIONAL INSTALLATION.

RadonAway will extend the Warranty Term of the fan to 5 years from date of manufacture if the Fan is installed in a professionally designed and professionally installed radon system or installed as a replacement fan in a professionally designed and professionally installed radon system. Proof of purchase and/or proof of professional installation may be required for service under this warranty. Outside the Continental United States and Canada the extended Warranty Term is limited to one (1) year from the date of manufacture.

RadonAway is not responsible for installation, removal or delivery costs associated with this Warranty.

EXCEPT AS STATED ABOVE, THE GPX01/XP/XR/RP SERIES FANS ARE PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL RADONAWAY BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR RELATING TO, THE FAN OR THE PERFORMANCE THEREOF. RADONAWAY'S AGGREGATE LIABILITY HEREUNDER SHALL NOT IN ANY EVENT EXCEED THE AMOUNT OF THE PURCHASE PRICE OF SAID PRODUCT. THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY SHALL BE THE REPAIR OR REPLACEMENT OF THE PRODUCT, TO THE EXTENT THE SAME DOES NOT MEET WITH RADONAWAY'S WARRANTY AS PROVIDED ABOVE.

For service under this Warranty, contact RadonAway for a Return Material Authorization (RMA) number and shipping information. No returns can be accepted without an RMA. If factory return is required, the customer assumes all shipping cost to and from factory.

RadonAway
3 Saber Way
Ward Hill, MA 01835
TEL. (978) 521-3703
FAX (978) 521-3964

RP265

Record the following information for your records:

Serial No.	<u>169613 -Cal. Nails</u>	<u>181546-Martino's</u>
Purchase Date	<u>6/8/16</u>	<u>6/8/16</u>

MATERIAL SAFETY DATA SHEET



Date Issued: 08/03/2007
MSDS No: 68101
Date Revised: 03/07/2008
Revision No: 2

3300 Colors

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3300 Colors

MANUFACTURER

Geocel Corporation
P.O. Box 398
Elkhart IN 46515-0398
Product Stewardship: 574-264-0645

24 HR. EMERGENCY TELEPHONE NUMBERS

ChemTel - 800-255-3924

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS: This product is irritating to the eyes and skin. Thermal decomposition/burning may produce toxic gases and fume. Closed containers may rupture when exposed to high temperatures, or when the product has been contaminated with water.

Avoid breathing hot mists and vapors. This product contains a respiratory and skin sensitizer. Causes respiratory tract irritation and may cause allergic respiratory reaction. May cause permanent respiratory damage. Product vapors are potentially irritating to skin. May cause allergic skin reaction and dermatitis.

POTENTIAL HEALTH EFFECTS

EYES: This product may cause irritation to the eyes. May cause temporary corneal injury.

SKIN: Skin contact may cause irritation. Isocyanates may react with skin protein and moisture to cause itching, reddening, swelling, scaling or blistering. Individuals previously sensitized to this material may experience these symptoms from exposure to very small amounts of liquid or vapor.

INGESTION: May cause irritation and corrosive action in the mouth, throat and digestive tract.

INHALATION: Single large does, and/or repeated exposures, may lead to sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms), causing an individual to experience adverse effects at exposure levels well below exposure limits or guidelines. Symptoms may include chest tightness, wheezing, shortness of breath, coughing or asthmatic attack, and may be delayed up to several hours. Extreme asthmatic reactions can be life threatening. Once sensitized, an individual may experience adverse symptoms upon exposure to dust, cold air or other irritants. Sensitization can last several months, years or be permanent in some cases.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Visual effects may include eye irritation, blurred vision, diplopia, changes in color perception, restriction of visual fields, and complete blindness.

SKIN: Irritation of the skin.

INGESTION: Diarrhea.

INHALATION: Irritation of upper respiratory tract, asthmatic symptoms, chest tightness, breathing difficulty, coughing, short throat.

TARGET ORGAN STATEMENT: The lungs and skin may be targeted and damaged by components of the product. Eyes.

HEALTH HAZARDS: This product contains Methylene Diphenyl Isocyanate (MDI) which is a potential skin sensitizer and has been shown to alter cells in certain experiments. Although inconclusive, these cellular changes are thought to indicate potential carcinogenicity. Risk to your health depends on duration and concentration of exposure.

COMMENTS: Signs and symptoms of overexposure to this product include headache, irritation of upper respiratory tract, asthmatic symptoms, chest tightness, breathing difficulty, coughing, dizziness, weakness, fatigue, eye irritation, skin irritation, diarrhea.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt.%	CAS	EINECS
Xylenes (o-,m-,p- Isomers)	1 - 5	001330-20-7	215-535-7
Ethyl Benzene	0.5 - 1.5	000100-41-4	- -
Methylene Disphenyl Isocyanate	0.1 - 1	000101-68-8	202-966-0

4. FIRST AID MEASURES

EYES: Immediately flush with plenty of water for at least 15 minutes. Get medical attention or advice.

SKIN: Remove contaminated clothing to prevent further skin exposure and dispose of properly. In situations involving considerable skin contact, place the contaminated person in a deluge shower for at least 15 minutes. For minor exposures, wash thoroughly with soap and clean water. Get medical attention if irritation persists.

INGESTION: If ingested, get immediate medical attention. Do not induce vomiting unless instructed to do so by medical personnel. Never give anything by mouth to a victim who is unconscious or is having convulsions.

INHALATION: Remove to fresh air. Get medical attention immediately for a large dose exposure or if cough or other symptoms develop. Administer oxygen or artificial respiration as needed.

NOTES TO PHYSICIAN: Treat symptomatically and supportively.

Eyes: Stain for evidence of corneal injury. If cornea is burned, apply antibiotic/steroid preparation as needed.

Skin: This product contains a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.

Ingestion: Treat symptomatically.

Inhalation: This material contains a known pulmonary sensitizer.

Any individual experiencing dermal or pulmonary sensitization should be removed from exposure to any diisocyanate. May aggravate existing heart conditions, particularly those with abnormal heart rhythms. If overexposure to the solvents in this product is suspected, testing should include nervous system and brain effects including recent memory, mood, concentration, headaches and altered sleep patterns. Liver and kidney function should be evaluated. This material, if aspirated into the lungs, may cause chemical pneumonitis; treat the affected person appropriately.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: 74.4°C (166°F)

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, or foam. Water spray (fog).

HAZARDOUS COMBUSTION PRODUCTS: Additional decomposition products include oxides of nitrogen, amines, hydrogen cyanide and isocyanate-containing compounds.

EXPLOSION HAZARDS: None known.

FIRE FIGHTING EQUIPMENT: Firefighters should wear full protective clothing including self contained breathing apparatus.

SENSITIVE TO STATIC DISCHARGE: Not known.

SENSITIVITY TO IMPACT: Not known.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Wearing the personal protective equipment designated in Section 8, carefully contain the spill and transfer to the appropriate container for disposal. Do not discharge to lakes, streams, ponds, or sewers. Dispose of in compliance with local, state, and federal regulations.

LARGE SPILL: Wearing the personal protective equipment designated in Section 8, carefully contain the spill and transfer to the appropriate container for disposal. Do not discharge to lakes, streams, ponds, or sewers. Dispose of in compliance with local, state, and federal regulations. Ventilate well while cleanup is in process and until fumes dissipate.

ENVIRONMENTAL PRECAUTIONS

WATER SPILL: Isolate spill area. Stop discharge if safe to do so. Stop material from entering sewers or water streams. Scrape up polyurethane and deposit into appropriate containers.

LAND SPILL: Isolate spill area. Stop discharge if safe to do so. Stop material from contaminating soil. Scrape up polyurethane and deposit into appropriate containers.

7. HANDLING AND STORAGE

HANDLING: Wash hands thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities. Wash contaminated goggles, face shields, and gloves. Professionally launder contaminated clothing before re-use. Do not breathe vapors, mists or dusts. Do not breathe fumes generated when the material is overheated or burned. Use adequate ventilation. Wear respiratory protection if the material is heated, sprayed, used in a confined space or if exposure limit is exceeded. This product can produce asthmatic sensitization. Individuals with lung or breathing problems or prior allergic reactions to isocyanate must avoid fumes from this product. Wear appropriate protective equipment to avoid contact with skin and eyes.

STORAGE: Store in a cool, dry, well-ventilated area away from heat, ignition sources and direct sunlight. Water contamination should be avoided. Cool location should be 60-80 degrees F or 15-30 degrees C.

COMMENTS: Attention! Follow label warnings even after container is emptied since empty containers may retain product residues. Do not reuse empty container for food, clothing, or products for human or animal consumption, or where skin contact can occur.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)					
		EXPOSURE LIMITS			
		OSHA PEL		ACGIH TLV	
Chemical Name		ppm	mg/m ³	ppm	mg/m ³
Xylenes (o-,m-,p- Isomers)	TWA	100	435	100	434
	STEL			150	651
Ethyl Benzene	TWA	100	435	100	434
	STEL			125	543
Methylene Disphenyl Isocyanate	TWA			0.005	0.051

ENGINEERING CONTROLS: Use local exhaust or general ventilation where the potential exists to exceed the PEL or TLV exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Wear safety glasses with side shields or goggles when handling this material.

SKIN: Wear appropriate clothing to minimize skin contact with this product.

RESPIRATORY: Avoid breathing vapor and/or mists. If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection. High airborne concentrations may necessitate the use of self-contained breathing apparatus (SCBA) or a supplied air respirator.

OTHER USE PRECAUTIONS: Eyewash fountains and emergency showers should be readily available.

COMMENTS: Wash hands thoroughly after each use, especially before eating or smoking. Good personal hygiene practices should always be followed.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Paste

ODOR: Solvent

COLOR: Various

pH: Not Applicable

PERCENT VOLATILE: 4

FREEZING POINT: NA = Not Applicable

FLASHPOINT AND METHOD: 74.4°C (166°F)

DENSITY: 11.22

(VOC): 3.900 %

10. STABILITY AND REACTIVITY**STABLE:** Yes**HAZARDOUS POLYMERIZATION:** Yes**STABILITY:** This product is stable under normal conditions but will react slightly with water to release some heat and carbon dioxide. The reaction is not violent. Carbon dioxide, carbon monoxide and in high temperature (800 °F) low oxygen atmospheres such as in fire situations, hydrogen cyanide may be released.**POLYMERIZATION:** Hazardous polymerization can occur with elevated temperatures or contact with water.**CONDITIONS TO AVOID:** Avoid strong acids. Avoid amines, strong bases, alcohols and metallic hydrides.**HAZARDOUS DECOMPOSITION PRODUCTS:** Unknown due to the complex nature of this material. Fumes from complete or incomplete combustion may include carbon dioxide, carbon monoxide, water vapor, oxides of nitrogen and a wide variety of innocuous or toxic fumes. Additional decomposition products include oxides of nitrogen, amines, hydrogen cyanide and isocyanate-containing compounds.**11. TOXICOLOGICAL INFORMATION****EYE EFFECTS:** Irritating to the eyes.**SKIN EFFECTS:** Irritating to the skin.**CARCINOGENICITY**

Chemical Name	IARC Status
Ethyl Benzene	2B

Notes: This product contains Methylene Diphenyl Isocyanate (MDI). MDI is not listed by the NTP, IARC or regulated by OSHA as a carcinogen. However, it has been shown to alter cells in certain experiments. Although inconclusive, these cellular changes are thought to indicate potential carcinogenicity.**REPEATED DOSE EFFECTS:** Single large doses, and/or repeated exposures, may lead to sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms), causing an individual to experience adverse effects at exposure levels well below exposure limits or guidelines. Symptoms may include chest tightness, wheezing, shortness of breath, coughing or asthmatic attack, and may be delayed up to several hours. Extreme asthmatic reactions can be life threatening. Once sensitized, an individual may experience adverse symptoms upon exposure to dust, cold air or other irritants. Sensitization can last several months, years or be permanent in some cases. Chronic exposure may cause lung damage, including fibrosis and decreased lung function, which may be permanent.**12. ECOLOGICAL INFORMATION****ECOTOXICOLOGICAL INFORMATION:** Organic solvents produce slight to moderate toxicity to aquatic life. Insufficient data exists to evaluate the effect on plants, birds or land animals.**13. DISPOSAL CONSIDERATIONS****DISPOSAL METHOD:** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Part 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.**14. TRANSPORT INFORMATION****DOT (DEPARTMENT OF TRANSPORTATION)****OTHER SHIPPING INFORMATION:** Generators must consult DOT laws and regulations to ensure the product is being transported appropriately.**COMMENTS:** Not regulated as dangerous goods.**15. REGULATORY INFORMATION****UNITED STATES****SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)****311 /312 HAZARD CATEGORIES:** This product poses the following physical and health hazard(s) as defined in 40
dec.007.25 Vapor Protection Services, 6544 Ferguson St., Indianapolis, IN 46226 (317) 252-9295

Attachment 7 (cont'd)

CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986:

FIRE: Yes **PRESSURE GENERATING:** No **REACTIVITY:** No **ACUTE:** Yes **CHRONIC:** Yes

313 REPORTABLE INGREDIENTS: This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR372. CAS #: 101-68-8 MDI, CAS #: 1330-20-7 Xylene and CAS #100-41-4 Ethyl Benzene.

EPCRA SECTION 313 SUPPLIER NOTIFICATION

Chemical Name	Wt. %	CAS
Xylenes (o-,m-,p- Isomers)	1 - 5	001330-20-7
Ethyl Benzene	0.5 - 1.5	000100-41-4

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

Chemical Name	Wt. %	CERCLA RQ
Xylenes (o-,m-,p- Isomers)	1 - 5	100
Ethyl Benzene	0.5 - 1.5	1,000
Methylene Disphenyl Isocyanate	0.1 - 1	5,000

TSCA (TOXIC SUBSTANCE CONTROL ACT)

Chemical Name	CAS
Xylenes (o-,m-,p- Isomers)	001330-20-7
Ethyl Benzene	000100-41-4
Methylene Disphenyl Isocyanate	000101-68-8

CALIFORNIA PROPOSITION 65: This product contains the following product on California's Proposition 65 List: CAS# 100-41-4 Ethyl Benzene.

16. OTHER INFORMATION

PREPARED BY: Technical Staff

REVISION SUMMARY: Revision #: 2 This MSDS replaces the November 12, 2007 MSDS. Any changes in information are as follows: In Section 1 Approval Date

NFPA STORAGE CLASSIFICATION: Health 2, Flammability 2, Physical Hazard 0

HMIS RATINGS NOTES: Health 2, Flammability 2, Physical Hazard 0, PPE X



Material Name: OATEY PURPLE OR CLEAR PRIMER NSF LISTED

***** Section 1 - Product and Company Identification *****

MSDS #1402E

Part Numbers: Purple – 30755(TV), 30756(TV), 30757(TV), 30758, 30759, 30927 Clear - 30749, 30750, 30751, 30752, 30753, 30754, 31652, 31653

Manufacturer Information

Oatey Co.
4700 West 160th Street
Cleveland, OH 44135

Phone: 216-267-7100

For Emergency First Aid call 1-877-740-5015. For chemical transportation emergencies ONLY, call Chemtrec at 1-800-424-9300. Outside the U.S. 1- 703-527-3887.

***** Section 2 - Hazards Identification *****

GHS Classification:

- Flammable Liquids - Category 2
- Acute Toxicity Oral - Category 4
- Acute Toxicity Dermal - Category 4
- Acute Toxicity Inhalation - Category 4
- Eye Damage/Irritation - Category 2A
- Carcinogenicity - Category 2
- Specific Target Organ Toxicity Single Exposure - Category 3

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

Danger

Hazard Statements

- Highly flammable liquid and vapor.
- Harmful if swallowed.
- Harmful in contact with skin.
- Harmful if inhaled.
- Causes serious eye irritation.
- Contains a chemical classified by the US EPA as a suspected possible carcinogen.
- May cause respiratory irritation.
- May cause drowsiness or dizziness.

Precautionary Statements

Prevention

Attachment 7 (cont'd)

Material Name: OATEY PURPLE OR CLEAR PRIMER NSF LISTED

Keep away from heat/sparks/open flames and hot surfaces. - No smoking.
Keep container tightly closed.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/eye protection/face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing fume/gas/mist/vapors.
Use only outdoors or in a well-ventilated area.

Response

If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
If swallowed: Call a poison center or doctor/physician if you feel unwell. Rinse mouth. Do not induce vomiting.
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.
If exposed or concerned: Get medical advice/attention.
In case of fire: Use dry chemical, CO₂, or foam to extinguish fire.

Storage

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

*** Section 3 - Composition / Information on Ingredients ***

CAS #	Component	Percent
78-93-3	Methyl ethyl ketone	25-40
67-64-1	Acetone	25-40
108-94-1	Cyclohexanone	15-30
109-99-9	Tetrahydrofuran	15-30

*** Section 4 - First Aid Measures ***

First Aid: Eyes

If material gets into eyes or if fumes cause irritation, immediately flush eyes with plenty of water until chemical is removed. If irritation persists, get medical attention immediately.

First Aid: Skin

Remove contaminated clothing immediately. Wash all exposed areas with soap and water. Get medical attention if irritation develops. Remove dried cement with hand cleaner or baby oil.

Material Name: OATEY PURPLE OR CLEAR PRIMER NSF LISTED

First Aid: Ingestion

DO NOT INDUCE VOMITING. Rinse mouth with water. Never give anything by mouth to a person who is unconscious or drowsy. Get immediate medical attention by calling a Poison Control Center, or hospital emergency room. If medical advice cannot be obtained, then take the person and product to the nearest medical emergency treatment center or hospital.

First Aid: Inhalation

If symptoms of exposure develop, remove to fresh air. If breathing becomes difficult, administer oxygen. Administer artificial respiration if breathing has stopped. Seek immediate medical attention.

***** Section 5 - Fire Fighting Measures *****

General Fire Hazards

See Section 9 for Flammability Properties.
Highly flammable liquid and vapor. Keep away from heat and all sources of ignition including sparks, flames, lighted cigarettes and pilot lights. Containers may rupture or explode in the heat of a fire. Vapors are heavier than air and may travel to a remote ignition source and flash back. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

Hazardous Combustion Products

Combustion will produce toxic and irritating vapors including carbon monoxide, carbon dioxide and hydrogen chloride.

Extinguishing Media

Use dry chemical, CO2, or foam to extinguish fire. Cool fire exposed container with water. Water may be ineffective as an extinguishing agent.

Unsuitable Extinguishing Media

None.

Fire Fighting Equipment/Instructions

Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored.

***** Section 6 - Accidental Release Measures *****

Recovery and Neutralization

Stop leak if it can be done without risk.

Materials and Methods for Clean-Up

Remove all sources of ignition and ventilate area. Soak up spill with an inert absorbent such as sand, earth or other noncombusting material. Put absorbent material in covered, labeled metal containers.

Emergency Measures

Isolate area. Keep unnecessary personnel away.

Personal Precautions and Protective Equipment

Personnel cleaning up the spill should wear appropriate personal protective equipment, including respirators if vapor concentrations are high.

Environmental Precautions

Prevent liquid from entering watercourses, sewers and natural waterways.

Prevention of Secondary Hazards

None

Material Name: OATEY PURPLE OR CLEAR PRIMER NSF LISTED

*** Section 7 - Handling and Storage ***

Handling Procedures

Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists. Use with adequate ventilation (equivalent to outdoors). Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep product away from heat, sparks, flames and all other sources of ignition. No smoking in storage or use areas. Keep containers closed when not in use. "Empty" containers retain product residue and can be hazardous. Follow all SDS precautions in handling empty containers. Do not cut or weld on or near empty or full containers.

Storage Procedures

Store in a cool, dry, well-ventilated area away from incompatible materials. Keep containers closed when not in use.

Incompatibilities

Oxidizing agents, alkalis, amines, ammonia, acids, chlorine compounds, chlorinated inorganics (potassium, calcium and sodium hypochlorite) and hydrogen peroxides. May attack plastic, resins and rubber.

*** Section 8 - Exposure Controls / Personal Protection ***
--

Component Exposure Limits**Acetone (67-64-1)**

ACGIH: 500 ppm TWA
750 ppm STEL
OSHA: 1000 ppm TWA; 2400 mg/m³ TWA
NIOSH: 250 ppm TWA; 590 mg/m³ TWA

Methyl ethyl ketone (78-93-3)

ACGIH: 200 ppm TWA
300 ppm STEL
OSHA: 200 ppm TWA; 590 mg/m³ TWA
NIOSH: 200 ppm TWA; 590 mg/m³ TWA
300 ppm STEL; 885 mg/m³ STEL

Cyclohexanone (108-94-1)

ACGIH: 20 ppm TWA
50 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 50 ppm TWA; 200 mg/m³ TWA
NIOSH: 25 ppm TWA; 100 mg/m³ TWA
Potential for dermal absorption

Tetrahydrofuran (109-99-9)

ACGIH: 50 ppm TWA
100 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 200 ppm TWA; 590 mg/m³ TWA
NIOSH: 200 ppm TWA; 590 mg/m³ TWA
250 ppm STEL; 735 mg/m³ STEL

Attachment 7 (cont'd)

Material Name: OATEY PURPLE OR CLEAR PRIMER NSF LISTED

Engineering Measures

Open doors & windows. Provide ventilation capable of maintaining emissions at the point of use below recommended exposure limits. If used in enclosed area, use exhaust fans. Exhaust fans should be explosion-proof or set up in a way that flammable concentrations of solvent vapors are not exposed to electrical fixtures or hot surfaces.

Personal Protective Equipment: Respiratory

For operations where the exposure limit may be exceeded, a NIOSH approved organic vapor respirator or supplied air respirator is recommended. Equipment selection depends on contaminant type and concentration, select in accordance with 29 CFR 1910.134 and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus.

Personal Protective Equipment: Hands

Rubber gloves are suitable for normal use of the product. For long exposures chemical resistant gloves may be required such as 4H(tm) or Silver Shield(tm) to avoid prolonged skin contact.

Personal Protective Equipment: Eyes

Safety glasses with side shields or safety goggles.

Personal Protective Equipment: Skin and Body

No additional protective equipment needed.

*** Section 9 - Physical & Chemical Properties ***

Appearance:	Purple or clear	Odor:	Ether-like
Physical State:	Liquid	pH:	NA
Vapor Pressure:	145 mmHg @ 20°C	Vapor Density:	2.5
Boiling Point:	151°F (66°C)	Melting Point:	NA
Solubility (H2O):	Negligible	Specific Gravity:	0.84 +/- 0.02 @ 20°C
Evaporation Rate:	(BUAC = 1) = 5.5 - 8.0	VOC:	99.96%
Octanol/H2O Coeff.:	ND	Flash Point:	14-23°F (-10 to -5°C)
Flash Point Method:	CCCFP	Upper Flammability Limit (UFL):	11.8
Lower Flammability Limit (LFL):	1.8	Burning Rate:	ND
Auto Ignition:	ND		

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid heat, sparks, flames and other sources of ignition.

Incompatible Products

Oxidizing agents, alkalis, amines, ammonia, acids, chlorine compounds, chlorinated inorganics (potassium, calcium and sodium hypochlorite) and hydrogen peroxides. May attack plastic, resins and rubber.

Hazardous Decomposition Products

Combustion will produce toxic and irritating vapors including carbon monoxide, carbon dioxide and hydrogen chloride.

Attachment 7 (cont'd)

Material Name: OATEY PURPLE OR CLEAR PRIMER NSF LISTED

*** Section 11 - Toxicological Information ***

Acute Toxicity

Component Analysis - LD50/LC50

Acetone (67-64-1)

Oral LD50 Rat 5800 mg/kg

Methyl ethyl ketone (78-93-3)

Inhalation LC50 Mouse 32 g/m³ 4 h; Oral LD50 Rat 2737 mg/kg; Dermal LD50 Rabbit 6480 mg/kg

Cyclohexanone (108-94-1)

Inhalation LC50 Rat 10.7 mg/L 4 h; Inhalation LC50 Rat 8000 ppm 4 h; Oral LD50 Rat 800 mg/kg; Dermal LD50 Rabbit 948 mg/kg

Tetrahydrofuran (109-99-9)

Inhalation LC50 Rat 53.9 mg/L 4 h; Inhalation LC50 Rat 180 mg/L 1 h; Oral LD50 Rat 1650 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

May cause irritation with redness, itching and pain. Methyl ethyl ketone and cyclohexanone may be absorbed through the skin causing effects similar to those listed under inhalation.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Vapors may cause irritation. Direct contact may cause irritation with redness, stinging and tearing of the eyes. May cause eye damage.

Potential Health Effects: Ingestion

Swallowing may cause abdominal pain, nausea, vomiting and diarrhea. Aspiration during swallowing or vomiting can cause chemical pneumonia and lung damage. May cause kidney and liver damage.

Potential Health Effects: Inhalation

Vapors or mists may cause mucous membrane and respiratory irritation, coughing, headache, dizziness, dullness, nausea, shortness of breath and vomiting. High concentrations may cause central nervous system depression, narcosis and unconsciousness. May cause kidney, liver and lung damage.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

Cyclohexanone has been positive in bacterial and mammalian assays. Acetone, methyl ethyl ketone and tetrahydrofuran are generally thought not to be mutagenic.

Carcinogenicity

A: General Product Information

In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

Attachment 7 (cont'd)

Material Name: OATEY PURPLE OR CLEAR PRIMER NSF LISTED

B: Component Carcinogenicity

Acetone (67-64-1)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

Cyclohexanone (108-94-1)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

Tetrahydrofuran (109-99-9)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

Reproductive Toxicity

Methyl ethyl ketone and cyclohexanone have been shown to cause embryofetal toxicity and birth defects in laboratory animals. Acetone and tetrahydrofuran has been found to cause adverse developmental effects only when exposure levels cause other toxic effects to the mother.

Specified Target Organ General Toxicity: Single Exposure

May cause respiratory irritation. Inhalation of high concentrations may cause central nervous system depression, narcosis and unconsciousness. May cause kidney, liver and lung damage.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

Aspiration during swallowing or vomiting can cause chemical pneumonia and lung damage. May cause kidney and liver damage.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

This product is not expected to be toxic to aquatic organisms.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Acetone (67-64-1)

Test & Species	Conditions
96 Hr LC50 Oncorhynchus mykiss	4.74 - 6.33 mL/L
96 Hr LC50 Pimephales promelas	6210 - 8120 mg/L [static]
96 Hr LC50 Lepomis macrochirus	8300 mg/L
48 Hr EC50 Daphnia magna	10294 - 17704 mg/L [Static]
48 Hr EC50 Daphnia magna	12600 - 12700 mg/L

Methyl ethyl ketone (78-93-3)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	3130-3320 mg/L [flow-through]
48 Hr EC50 Daphnia magna	>520 mg/L
48 Hr EC50 Daphnia magna	5091 mg/L
48 Hr EC50 Daphnia magna	4025 - 6440 mg/L [Static]

Attachment 7 (cont'd)

Material Name: OATEY PURPLE OR CLEAR PRIMER NSF LISTED

Cyclohexanone (108-94-1)

Test & Species

	Conditions
96 Hr LC50 Pimephales promelas	481-578 mg/L [flow-through]
96 Hr LC50 Pimephales promelas	8.9 mg/L
96 Hr EC50 Chlorella vulgaris	20 mg/L
24 Hr EC50 Daphnia magna	800 mg/L

Tetrahydrofuran (109-99-9)

Test & Species

	Conditions
96 Hr LC50 Pimephales promelas	1970-2360 mg/L [flow-through]
96 Hr LC50 Pimephales promelas	2700-3600 mg/L [static]
24 Hr EC50 Daphnia magna	5930 mg/L

Persistence/Degradability

No information available for the product.

Bioaccumulation

No information available for the product.

Mobility in Soil

No information available for the product.

*** Section 13 - Disposal Considerations ***

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

*** Section 14 - Transportation Information ***

DOT Information

For Greater than 1 liter (0.3 gal):

Shipping Name: Flammable Liquid, n.o.s (Methyl Ethyl Ketone, Acetone)

UN #: 1993 **Hazard Class:** 3 **Packing Group:** II

Required Label(s): Flammable Liquid

For Less than 1 liter (0.3 gal):

Shipping Name: Consumer Commodity, ORM-D

IMDG Information

For Greater than 1 liter (0.3 gal):

Shipping Name: Flammable Liquid, n.o.s (Methyl Ethyl Ketone, Acetone)

UN #: 1993 **Hazard Class:** 3 **Packing Group:** II

Required Label(s): Flammable Liquid

For Less than 1 liter (0.3 gal):

Shipping Name: Flammable Liquid, n.o.s (Limited Quantity)

UN #: 1993 **Hazard Class:** 3 **Packing Group:** II

Attachment 7 (cont'd)

Material Name: OATEY PURPLE OR CLEAR PRIMER NSF LISTED

Required Label(s): None (Limited Quantities are expected from labeling)

*** Section 15 - Regulatory Information ***

Regulatory Information

US Federal Regulations

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Acetone (67-64-1)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

Methyl ethyl ketone (78-93-3)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

Cyclohexanone (108-94-1)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

Tetrahydrofuran (109-99-9)

CERCLA: 1000 lb final RQ; 454 kg final RQ

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Acetone	67-64-1	Yes	Yes	Yes	Yes	Yes	No
Methyl ethyl ketone	78-93-3	Yes	Yes	Yes	Yes	Yes	No
Cyclohexanone	108-94-1	Yes	Yes	Yes	Yes	Yes	No
Tetrahydrofuran	109-99-9	Yes	Yes	Yes	Yes	Yes	No

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Acetone	67-64-1	1 %
Methyl ethyl ketone	78-93-3	1 %
Cyclohexanone	108-94-1	0.1 %
Tetrahydrofuran	109-99-9	1 %

Additional Regulatory Information

A: General Product Information

This product contains trace amounts of chemicals known to the State of California to cause cancer. Under normal use conditions, exposure to these chemicals at levels above the State of California "No Significant Risk Level" (NSRL) are unlikely. The use of proper personal protective equipment (PPE) and ventilation guidelines noted in Section 8 will minimize exposure to these chemicals.

Attachment 7 (cont'd)

Material Name: OATEY PURPLE OR CLEAR PRIMER NSF LISTED

B: Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Acetone	67-64-1	Yes	DSL	EINECS
Methyl ethyl ketone	78-93-3	Yes	DSL	EINECS
Cyclohexanone	108-94-1	Yes	DSL	EINECS
Tetrahydrofuran	109-99-9	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Other Information

NFPA and HMIS:

NFPA Hazard Signal: Health: 2 Flammability: 3 Reactivity: 1 Special: None

HMIS Hazard Signal: Health: 2* Flammability: 3 Reactivity: 1 PPE: G

Disclaimer:

The information herein has been compiled from sources believed to be reliable, up-to-date, and is accurate to the best of our knowledge. However, we cannot give any guarantees regarding information from other sources, and expressly do not make warranties, nor assume any liability for its use.

End of Sheet



Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

***** Section 1 - Product and Company Identification *****

MSDS #1102E

Part Numbers: Clear 30850, 30863, 30876(TV), 30882, 31008(TV), 31011, 31950, 31951, 31952, 31953
Gray 30349, 31093, 31094, 31095, 31105, 31118, 31978, 31979, 31980, 31981, 32050, 32051, 32052, 32210, 32211

Manufacturer Information

Oatey Co.
4700 West 160th Street
Cleveland, OH 44135

Phone: 216-267-7100

For Emergency First Aid call 1-877-740-5015. For chemical transportation emergencies ONLY, call Chemtrec at 1-800-424-9300. Outside the U.S. 1- 703-527-3887.

***** Section 2 - Hazards Identification *****

GHS Classification:

Flammable Liquids - Category 2
Acute Toxicity Oral - Category 4
Acute Toxicity Dermal - Category 4
Acute Toxicity Inhalation - Category 4
Eye Damage/Irritation - Category 2A
Carcinogenicity - Category 2
Specific Target Organ Toxicity Single Exposure - Category 3

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

Danger

Hazard Statements

Highly flammable liquid and vapor.
Harmful if swallowed.
Harmful in contact with skin.
Harmful if inhaled.
Causes serious eye irritation.
Contains a chemical classified by the US EPA as a suspected possible carcinogen.
May cause respiratory irritation.
May cause drowsiness or dizziness.

Attachment 7 (cont'd)

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames and hot surfaces. - No smoking.
Keep container tightly closed.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/eye protection/face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing fume/gas/mist/vapors.
Use only outdoors or in a well-ventilated area.

Response

If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
If swallowed: Call a poison center or doctor/physician if you feel unwell. Rinse mouth. Do not induce vomiting.
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.
If exposed or concerned: Get medical advice/attention.
In case of fire: Use dry chemical, CO₂, or foam to extinguish fire.

Storage

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

*** Section 3 - Composition / Information on Ingredients ***

CAS #	Component	Percent
109-99-9	Tetrahydrofuran	40-60
108-94-1	Cyclohexanone	10-25
67-64-1	Acetone	10-25
9002-86-2	PVC (Chloroethylene, polymer)	12-20
78-93-3	Methyl ethyl ketone	5-15
112945-52-5	Silica, amorphous, fumed, crystalline-free	1-4

*** Section 4 - First Aid Measures ***

First Aid: Eyes

If material gets into eyes or if fumes cause irritation, immediately flush eyes with plenty of water until chemical is removed. If irritation persists, get medical attention immediately.

Attachment 7 (cont'd)

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

First Aid: Skin

Remove contaminated clothing immediately. Wash all exposed areas with soap and water. Get medical attention if irritation develops. Remove dried cement with hand cleaner or baby oil.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Rinse mouth with water. Never give anything by mouth to a person who is unconscious or drowsy. Get immediate medical attention by calling a Poison Control Center, or hospital emergency room. If medical advice cannot be obtained, then take the person and product to the nearest medical emergency treatment center or hospital.

First Aid: Inhalation

If symptoms of exposure develop, remove to fresh air. If breathing becomes difficult, administer oxygen. Administer artificial respiration if breathing has stopped. Seek immediate medical attention.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Highly flammable liquid and vapor. Keep away from heat and all sources of ignition including sparks, flames, lighted cigarettes and pilot lights. Containers may rupture or explode in the heat of a fire. Vapors are heavier than air and may travel to a remote ignition source and flash back. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

Hazardous Combustion Products

Combustion will produce toxic and irritating vapors including carbon monoxide, carbon dioxide and hydrogen chloride.

Extinguishing Media

Use dry chemical, CO₂, or foam to extinguish fire. Cool fire exposed container with water. Water may be ineffective as an extinguishing agent.

Unsuitable Extinguishing Media

None.

Fire Fighting Equipment/Instructions

Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Stop leak if it can be done without risk.

Materials and Methods for Clean-Up

Remove all sources of ignition and ventilate area. Soak up spill with an inert absorbent such as sand, earth or other non-combusting material. Put absorbent material in covered, labeled metal containers.

Emergency Measures

Isolate area. Keep unnecessary personnel away.

Personal Precautions and Protective Equipment

Personnel cleaning up the spill should wear appropriate personal protective equipment, including respirators if vapor concentrations are high.

Environmental Precautions

Prevent liquid from entering watercourses, sewers and natural waterways.

Prevention of Secondary Hazards

None

Attachment 7 (cont'd)

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

*** Section 7 - Handling and Storage ***

Handling Procedures

Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists. Use with adequate ventilation (equivalent to outdoors). Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep product away from heat, sparks, flames and all other sources of ignition. No smoking in storage or use areas. Keep containers closed when not in use. Other: "Empty" containers retain product residue and can be hazardous. Follow all SDS precautions in handling empty containers. Do not cut or weld on or near empty or full containers.

Storage Procedures

Store in a cool, dry, well-ventilated area away from incompatible materials. Keep containers closed when not in use.

Incompatibilities

Oxidizing agents, alkalis, amines, ammonia, acids, chlorine compounds, chlorinated inorganics (potassium, calcium and sodium hypochlorite) and hydrogen peroxides. May attack plastic, resins and rubber.

*** Section 8 - Exposure Controls / Personal Protection ***

Component Exposure Limits

Tetrahydrofuran (109-99-9)

ACGIH: 50 ppm TWA
100 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 200 ppm TWA; 590 mg/m³ TWA
NIOSH: 200 ppm TWA; 590 mg/m³ TWA
250 ppm STEL; 735 mg/m³ STEL

Cyclohexanone (108-94-1)

ACGIH: 20 ppm TWA
50 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 50 ppm TWA; 200 mg/m³ TWA
NIOSH: 25 ppm TWA; 100 mg/m³ TWA
Potential for dermal absorption

Acetone (67-64-1)

ACGIH: 500 ppm TWA
750 ppm STEL
OSHA: 1000 ppm TWA; 2400 mg/m³ TWA
NIOSH: 250 ppm TWA; 590 mg/m³ TWA

PVC (Chloroethylene, polymer) (9002-86-2)

ACGIH: 1 mg/m³ TWA (respirable fraction)

Methyl ethyl ketone (78-93-3)

ACGIH: 200 ppm TWA
300 ppm STEL
OSHA: 200 ppm TWA; 590 mg/m³ TWA
NIOSH: 200 ppm TWA; 590 mg/m³ TWA
300 ppm STEL; 885 mg/m³ STEL

Attachment 7 (cont'd)

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

Engineering Measures

Open doors & windows. Provide ventilation capable of maintaining emissions at the point of use below recommended exposure limits. If used in enclosed area, use exhaust fans. Exhaust fans should be explosion-proof or set up in a way that flammable concentrations of solvent vapors are not exposed to electrical fixtures or hot surfaces.

Personal Protective Equipment: Respiratory

For operations where the exposure limit may be exceeded, a NIOSH approved organic vapor respirator or supplied air respirator is recommended. Equipment selection depends on contaminant type and concentration, select in accordance with 29 CFR 1910.134 and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus.

Personal Protective Equipment: Hands

Rubber gloves are suitable for normal use of the product. For long exposures chemical resistant gloves may be required such as 4H(tm) or Silver Shield(tm) to avoid prolonged skin contact.

Personal Protective Equipment: Eyes

Safety glasses with side shields or safety goggles.

Personal Protective Equipment: Skin and Body

No additional protective equipment needed.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Clear or Gray	Odor:	Ether-like
Physical State:	Liquid	pH:	NA
Vapor Pressure:	145 mmHg @ 20°C	Vapor Density:	2.5
Boiling Point:	151°F (66°C)	Melting Point:	NA
Solubility (H₂O):	Negligible	Specific Gravity:	0.94 +/- 0.02 @ 20°C
Evaporation Rate:	(BUAC = 1) = 5.5 - 8.0	VOC:	80-84% Maximum 510 g/L per SCAQMD Test Method 316A.
Octanol/H₂O Coeff.:	ND	Flash Point:	14-23°F (-10 to -5°C)
Flash Point Method:	CCCFP	Upper Flammability Limit (UFL):	11.8
Lower Flammability Limit (LFL):	1.8	Burning Rate:	ND
Auto Ignition:	ND		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid heat, sparks, flames and other sources of ignition.

Incompatible Products

Oxidizing agents, alkalis, amines, ammonia, acids, chlorine compounds, chlorinated inorganics.

Hazardous Decomposition Products

Combustion will produce toxic and irritating vapors including carbon monoxide, carbon dioxide and hydrogen chloride.

Attachment 7 (cont'd)

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

*** Section 11 - Toxicological Information ***

Acute Toxicity

Component Analysis - LD50/LC50

Tetrahydrofuran (109-99-9)

Inhalation LC50 Rat 53.9 mg/L 4 h; Inhalation LC50 Rat 180 mg/L 1 h; Oral LD50 Rat 1650 mg/kg

Cyclohexanone (108-94-1)

Inhalation LC50 Rat 10.7 mg/L 4 h; Inhalation LC50 Rat 8000 ppm 4 h; Oral LD50 Rat 800 mg/kg; Dermal LD50 Rabbit 948 mg/kg

Acetone (67-64-1)

Oral LD50 Rat 5800 mg/kg

Methyl ethyl ketone (78-93-3)

Inhalation LC50 Mouse 32 g/m³ 4 h; Oral LD50 Rat 2737 mg/kg; Dermal LD50 Rabbit 6480 mg/kg

Silica, amorphous, fumed, crystalline-free (112945-52-5)

Oral LD50 Rat 3160 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

May cause irritation with redness, itching and pain. Methyl ethyl ketone and cyclohexanone may be absorbed through the skin causing effects similar to those listed under inhalation.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Vapors may cause irritation. Direct contact may cause irritation with redness, stinging and tearing of the eyes. May cause eye damage.

Potential Health Effects: Ingestion

Swallowing may cause abdominal pain, nausea, vomiting and diarrhea. Aspiration during swallowing or vomiting can cause chemical pneumonia and lung damage. May cause kidney and liver damage.

Potential Health Effects: Inhalation

Vapors or mists may cause mucous membrane and respiratory irritation, coughing, headache, dizziness, dullness, nausea, shortness of breath and vomiting. High concentrations may cause central nervous system depression, narcosis and unconsciousness. May cause kidney, liver and lung damage.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

Cyclohexanone has been positive in bacterial and mammalian assays. Acetone, methyl ethyl ketone and tetrahydrofuran are generally thought not to be mutagenic.

Attachment 7 (cont'd)

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

Carcinogenicity

A: General Product Information

In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

B: Component Carcinogenicity

Tetrahydrofuran (109-99-9)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

Cyclohexanone (108-94-1)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

Acetone (67-64-1)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

PVC (Chloroethylene, polymer) (9002-86-2)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Supplement 7 [1987]; Monograph 19 [1979] (Group 3 (not classifiable))

Silica, amorphous, fumed, crystalline-free (112945-52-5)

IARC: Monograph 68 [1997] (listed under Amorphous silica) (Group 3 (not classifiable))

Reproductive Toxicity

Methyl ethyl ketone and cyclohexanone have been shown to cause embryofetal toxicity and birth defects in laboratory animals. Acetone and tetrahydrofuran has been found to cause adverse developmental effects only when exposure levels cause other toxic effects to the mother.

Specified Target Organ General Toxicity: Single Exposure

May cause respiratory irritation. Inhalation of high concentrations may cause central nervous system depression, narcosis and unconsciousness. May cause kidney, liver and lung damage.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

Aspiration during swallowing or vomiting can cause chemical pneumonia and lung damage. May cause kidney and liver damage.

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

This product is not expected to be toxic to aquatic organisms.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Tetrahydrofuran (109-99-9)

Test & Species

Conditions

Attachment 7 (cont'd)

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

96 Hr LC50 Pimephales promelas	1970-2360 mg/L [flow-through]
96 Hr LC50 Pimephales promelas	2700-3600 mg/L [static]
24 Hr EC50 Daphnia magna	5930 mg/L

Cyclohexanone (108-94-1)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	481-578 mg/L [flow-through]
96 Hr LC50 Pimephales promelas	8.9 mg/L
96 Hr EC50 Chlorella vulgaris	20 mg/L
24 Hr EC50 Daphnia magna	800 mg/L

Acetone (67-64-1)

Test & Species	Conditions
96 Hr LC50 Oncorhynchus mykiss	4.74 - 6.33 mL/L
96 Hr LC50 Pimephales promelas	6210 - 8120 mg/L [static]
96 Hr LC50 Lepomis macrochirus	8300 mg/L
48 Hr EC50 Daphnia magna	10294 - 17704 mg/L [Static]
48 Hr EC50 Daphnia magna	12600 - 12700 mg/L

Methyl ethyl ketone (78-93-3)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	3130-3320 mg/L [flow-through]
48 Hr EC50 Daphnia magna	>520 mg/L
48 Hr EC50 Daphnia magna	5091 mg/L
48 Hr EC50 Daphnia magna	4025 - 6440 mg/L [Static]

Persistence/Degradability

No information available for the product.

Bioaccumulation

No information available for the product.

Mobility in Soil

No information available for the product.

*** Section 13 - Disposal Considerations ***

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

US EPA Waste Number & Descriptions

Attachment 7 (cont'd)

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

Component Waste Numbers

Tetrahydrofuran (109-99-9)

RCRA: waste number U213 (Ignitable waste)

Cyclohexanone (108-94-1)

RCRA: waste number U057 (Ignitable waste)

Acetone (67-64-1)

RCRA: waste number U002 (Ignitable waste)

Methyl ethyl ketone (78-93-3)

RCRA: waste number U159 (Ignitable waste, Toxic waste)
200.0 mg/L regulatory level

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

***** Section 14 - Transportation Information *****

DOT Information

For Greater than 1 liter (0.3 gal):

Shipping Name: Adhesives

UN #: 1133 Hazard Class: 3 Packing Group: II

Required Label(s): Flammable Liquid

For Less than 1 liter (0.3 gal):

Shipping Name: Consumer Commodity, ORM-D

IMDG Information

For Greater than 1 liter (0.3 gal):

Shipping Name: Adhesives

UN #: 1133 Hazard Class: 3 Packing Group: II

Required Label(s): Flammable Liquid

For Less than 1 liter (0.3 gal):

Shipping Name: Adhesives

UN #: 1133 Hazard Class: 3 Packing Group: II

Required Label(s): None (Limited Quantities are expected from labeling)

***** Section 15 - Regulatory Information *****

Regulatory Information

US Federal Regulations

Attachment 7 (cont'd)

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Tetrahydrofuran (109-99-9)

CERCLA: 1000 lb final RQ; 454 kg final RQ

Cyclohexanone (108-94-1)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

Acetone (67-64-1)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

Methyl ethyl ketone (78-93-3)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Tetrahydrofuran	109-99-9	Yes	Yes	Yes	Yes	Yes	No
Cyclohexanone	108-94-1	Yes	Yes	Yes	Yes	Yes	No
Acetone	67-64-1	Yes	Yes	Yes	Yes	Yes	No
PVC (Chloroethylene, polymer)	9002-86-2	No	No	No	Yes	No	No
Methyl ethyl ketone	78-93-3	Yes	Yes	Yes	Yes	Yes	No

This product contains trace amounts of chemicals known to the State of California to cause cancer. Under normal use conditions, exposure to these chemicals at levels above the State of California "No Significant Risk Level" (NSRL) are unlikely. The use of proper personal protective equipment (PPE) and ventilation guidelines noted in Section 8 will minimize exposure to these chemicals.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Tetrahydrofuran	109-99-9	1 %
Cyclohexanone	108-94-1	0.1 %
Acetone	67-64-1	1 %
Methyl ethyl ketone	78-93-3	1 %

Attachment 7 (cont'd)

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Tetrahydrofuran	109-99-9	Yes	DSL	EINECS
Cyclohexanone	108-94-1	Yes	DSL	EINECS
Acetone	67-64-1	Yes	DSL	EINECS
PVC (Chloroethylene, polymer)	9002-86-2	Yes	DSL	ELINCS
Methyl ethyl ketone	78-93-3	Yes	DSL	EINECS
Silica, amorphous, fumed, crystalline-free	112945-52-5	No	DSL	No

* * * Section 16 - Other Information * * *

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Other Information

NFPA and HMIS:

NFPA Hazard Signal: Health: 2 Flammability: 3 Reactivity: 1 Special: None

HMIS Hazard Signal: Health: 2* Flammability: 3 Reactivity: 1 PPE: G

Disclaimer:

The information herein has been compiled from sources believed to be reliable, up-to-date, and is accurate to the best of our knowledge. However, we cannot give any guarantees regarding information from other sources, and expressly do not make warranties, nor assume any liability for its use.

End of Sheet

QUIKRETE**CEMENT & CONCRETE PRODUCTS™**

RAPID SETTING REPAIR MATERIALS

MATERIAL SAFETY DATA SHEET
(Complies with OSHA 29 CFR 1910.1200)

SECTION I: PRODUCT IDENTIFICATION

The QUIKRETE® Companies
One Securities Centre
3490 Piedmont Road, Suite 1300
Atlanta, GA 30329

Emergency Telephone Number
(770) 216-9580
Information Telephone Number
(770) 216-9580

MSDS D4
Revision: May-12

QUIKRETE® Product Name
RAPID ROAD REPAIR

Product #
FIBERED 1242-50,
UN-FIBERED 1242-52
EXTENDED 1242-80
1243-50
1126-00
1240-00
1245-80, -81
1126-00

RAPID HARDENING SAND MIX
HYDRAULIC WATER STOP
QUICK SETTING CEMENT
EXTERIOR USE ANCHORING CEMENT
FASTSET™ WATER-STOP CEMENT

HEALTH		1
FLAMMABILITY		0
PHYSICAL HAZARD		0
PERSONAL PROTECTION Safety Glasses, Gloves and Dust Respirator		

PRODUCT USE: HYDRAULIC CEMENT-BASED RAPID-SETTING REPAIR MATERIALS

SECTION II - HAZARD IDENTIFICATION

Route(s) of Entry: Inhalation, Skin, Ingestion

Acute Exposure: Product becomes alkaline when exposed to moisture. Exposure can dry the skin, cause alkali burns and affect the mucous membranes. Dust can irritate the eyes and upper respiratory system. Toxic effects noted in animals include, for acute exposures, alveolar damage with pulmonary edema.

Chronic Exposure: Dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis.

Carcinogenicity: Since Portland cement and blended cements are manufactured from raw materials mined from the earth (limestone, marl, sand, shale, etc.) and process heat is provided by burning fossil fuels, trace, but detectable, amounts of naturally occurring, and possibly harmful, elements may be found during chemical analysis. Under ASTM standards, Portland cement may contain 0.75 % insoluble residue. A fraction of these residues may be free crystalline silica. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs and

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possibly cancer. There is evidence that exposure to respirable silica or the disease silicosis is associated with an increased incidence of Scleroderma, tuberculosis and kidney disorders.

Carcinogenicity Listings:

NTP:	Known carcinogen
OSHA:	Not listed as a carcinogen
IARC Monographs:	Group 1 Carcinogen
California Proposition 65:	Known carcinogen

NTP: The National Toxicology Program, in its "Ninth Report on Carcinogens" (released May 15, 2000) concluded that "Respirable crystalline silica (RCS), primarily quartz dusts occurring in industrial and occupational settings, is *known to be a human carcinogen*, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to RCS and increased lung cancer rates in workers exposed to crystalline silica dust (reviewed in IAC, 1997; Brown *et al.*, 1997; Hind *et al.*, 1997)

IARC: The International Agency for Research on Cancer ("IARC") concluded that there was "*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is "*sufficient evidence* in experimental animals for the carcinogenicity of quartz or cristobalite." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is *carcinogenic to humans* (Group 1)." The IARC evaluation noted that "carcinogenicity was not detected in all industrial circumstances or studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of carcinogenic Risks to Humans, Volume 68, "Silica, Some Silicates." (1997)

Signs and Symptoms of Exposure: Symptoms of excessive exposure to the dust include shortness of breath and reduced pulmonary function. Excessive exposure to skin and eyes especially when mixed with water can cause caustic burns as severe as third degree.

Medical Conditions Generally Aggravated by Exposure: Individuals with sensitive skin and with pulmonary and/or respiratory disease, including, but not limited to, asthma and bronchitis, or subject to eye irritation, should be precluded from exposure. Exposure to crystalline silica or the disease silicosis is associated with increased incidence of scleroderma, Tuberculosis and possibly increased incidence of kidney lesions.

Chronic Exposure: Dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis. (May contain trace (<0.05 %) amounts of chromium salts or compounds including hexavalent chromium, or other metals found to be hazardous or toxic in some chemical forms. These metals are mostly present as trace substitutions within the principal minerals)

Medical Conditions Generally Aggravated by Exposure: Individuals with sensitive skin and with pulmonary and/or respiratory disease, including, but not limited to, asthma and bronchitis, or subject to eye irritation, should be precluded from exposure.

QUIKRETE**CEMENT & CONCRETE PRODUCTS™****SECTION III - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION**

Hazardous Components	CAS No. mg/M ³	PEL (OSHA) TLV (ACGIH) mg/M ³	
Silica Sand, crystalline	14808-60-7	<u>10</u>	0.05 (respirable)
Portland Cement	65997-15-1	5	5
May Contain one or more of the following ingredients:			
Amorphous Silica	07631-86-9	<u>80 mg/M³</u>	10
		% SiO ₂	
Calcium Sulfate	10101-41-4 or 13397-24-5	5	5
Lime	01305-62-0	5	5
Fly Ash	68131-74-8	5	5
Calcium Aluminate Cement	65997-16-2	5	5
Clay	01332-58-7	5	5
Pulverized Limestone	01317-65-3	5	5

Other Limits: National Institute for Occupational Safety and Health (NIOSH). Recommended standard maximum permissible concentration=0.05 mg/M³ (respirable free silica) as determined by a full-shift sample up to 10-hour working day, 40-hour work week. See NIOSH Criteria for a Recommended Standard Occupational Exposure to Crystalline Silica

SECTION IV – First Aid Measures

Eyes: Immediately flush eye thoroughly with water. Continue flushing eye for at least 15 minutes, including under lids, to remove all particles. Call physician immediately.

Skin: Wash skin with cool water and pH-neutral soap or a mild detergent. Seek medical treatment if irritation or inflammation develops or persists. Seek immediate medical treatment in the event of burns.

Inhalation: Remove person to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration. Seek medical help if coughing and other symptoms do not subside. Inhalations of large amounts of Portland cement require immediate medical attention.

Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

SECTION V - FIRE AND EXPLOSION HAZARD DATA

Flammability: Noncombustible and not explosive.

Auto-ignition Temperature: Not Applicable

Flash Points: Not Applicable



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SECTION VI – ACCIDENTAL RELEASE MEASURES

If spilled, use dustless methods (vacuum) and place into covered container for disposal (if not contaminated or wet). Use adequate ventilation to keep exposure to airborne contaminants below the exposure limit.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND STORAGE

Do not allow water to contact the product until time of use. **DO NOT BREATHE DUST.** In dusty environments, the use of an OSHA, MSHA or NIOSH approved respirator and tight fitting goggles is recommended.

SECTION VIII – EXPOSURE CONTROL MEASURES

Engineering Controls: Local exhaust can be used, if necessary, to control airborne dust levels.

Personal Protection: The use of barrier creams or impervious gloves, boots and clothing to protect the skin from contact is recommended. Following work, workers should shower with soap and water. Precautions must be observed because burns occur with little warning -- little heat is sensed.

WARN EMPLOYEES AND/OR CUSTOMERS OF THE HAZARDS AND REQUIRED OSHA PRECAUTIONS ASSOCIATED WITH THE USE OF THIS PRODUCT.

Exposure Limits: Consult local authorities for acceptable exposure limits

SECTION IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance: Gray to gray-brown colored powder. Some products contain coarse aggregate.

Specific Gravity: 2.6 to 3.15

Melting Point: >2700°F

Boiling Point: >2700°F

Vapor Pressure: Not Applicable

Vapor Density: Not Applicable

Evaporation Rate: Not Applicable

Solubility in Water: Slight

Odor: Not Applicable

SECTION X - REACTIVITY DATA

Stability: Stable.

Incompatibility (Materials to Avoid): Material when mixed with water will react with Aluminum and other alkali and alkaline earth elements liberating hydrogen gas.

Hazardous Decomposition or By-products: None

Hazardous Polymerization: Will Not Occur.

Condition to Avoid: Keep dry until used to preserve product utility.

QUIKRETE**CEMENT & CONCRETE PRODUCTS™****SECTION XI – TOXICOLOGICAL INFORMATION****Routes of Entry:** Inhalation, Ingestion**Toxicity to Animals:**

LD50: Not Available

LC50: Not Available

Chronic Effects on Humans: Conditions aggravated by exposure include eye disease, skin disorders and Chronic Respiratory conditions.**Special Remarks on Toxicity:** Not Available**SECTION XII – ECOLOGICAL INFORMATION****Ecotoxicity:** Not Available**BOD5 and COD:** Not Available**Products of Biodegradation:** Not available**Toxicity of the Products of Biodegradation:** Not available**Special Remarks on the Products of Biodegradation:** Not available**SECTION XIII – DISPOSAL CONSIDERATIONS****Waste Disposal Method:** The packaging and material may be land filled; however, material should be covered to minimize generation of airborne dust. This product is not classified as a hazardous waste under the authority of the RCRA (40CFR 261) or CERCLA (40CFR 117&302).**SECTION XIV – TRANSPORT INFORMATION****DOT/UN Shipping Name:** Non-regulated**DOT Hazard Class:** Non-regulated**Shipping Name:** Non-regulated

Non-Hazardous under U.S. DOT and TDG Regulations

SECTION XV – OTHER REGULATORY INFORMATION**US OSHA 29CFR 1910.1200:** Considered hazardous under this regulation and should be included in the employers hazard communication program**SARA (Title III) Sections 311 & 312:** Qualifies as a hazardous substance with delayed health effects**SARA (Title III) Section 313:** Not subject to reporting requirements**TSCA (May 1997):** All components are on the TSCA inventory list**Federal Hazardous Substances Act:** Is a hazardous substance subject to statues promulgated under the subject act**California Regulation: WARNING:** This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.



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Canadian Environmental Protection Act: Not listed

WHMIS Classification: Considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class D2A, E- Corrosive Material) and subject to the requirements of Health Canada's Workplace Hazardous Material Information (WHMIS). This product has been classified according to the hazard criteria of the Controlled Products Regulation (CPR). This document complies with the WHMIS requirements of the Hazardous Products Act (HPA) and the CPR.

SECTION XVI – OTHER INFORMATION

HMIS-III:	Health –	0 = No significant health risk 1 = Irritation or minor reversible injury possible 2 = Temporary or minor injury possible 3 = Major injury possible unless prompt action is taken 4 = Life threatening, major or permanent damage possible
	Flammability-	0 = Material will not burn 1 = Material must be preheated before ignition will occur 2 = Material must be exposed to high temperatures before ignition 3 = Material capable of ignition under normal temperatures 4 = Flammable gases or very volatile liquids; may ignite spontaneously
	Physical Hazard-	0 = Material is normally stable, even under fire conditions 1 = Material normally stable but may become unstable at high temps 2 = Materials that are unstable and may undergo react at room temp 3 = Materials that may form explosive mixtures with water 4 = Materials that are readily capable of explosive water reaction

Abbreviations:

ACGIH	American Conference of Government Industrial Hygienists
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
CFR	Code of Federal Regulations
CPR	Controlled Products Regulations (Canada)
DOT	Department of Transportation
IARC	International Agency for Research
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicity Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
TLV	Threshold Limit Value
TWA	Time-weighted Average
WHMIS	Workplace Hazardous Material Information System

Revision #07-01, supersedes all previous revisions.

QUIKRETE[®]**CEMENT & CONCRETE PRODUCTS™****Created: 10/25/2006****Last Updated: May 8, 2012**

NOTE: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to silica contained in our products.



APPENDIX B

Inspection and Repair Logs

**MARTINO'S DRY CLEANERS - 52ND STREET
INSPECTION LOG**

Inspections to be completed annually during winter

Inspection Date	Inspector Name/Company	All PFE Measurements Negative?	Flow Rate (fpm)	Inspection Findings and Recommended Actions

Log shall be kept on file by environmental consultant and/or property owner.

MARTINO'S DRY CLEANERS - 52ND STREET
INSPECTION LOG

Inspections to be completed annually during winter

Inspection Date	Inspector Name/Company	All PFE Measurements Negative?	Flow Rate (fpm)	Inspection Findings and Recommended Actions

Log shall be kept on file by environmental consultant and/or property owner.

**MARTINO'S DRY CLEANERS - 52ND STREET
REPAIR LOG**

Date	Personnel/Company	System Address	Description of Problem	Description of Modification or Repair

Log shall be kept on file by environmental consultant and/or property owner.

MARTINO'S DRY CLEANERS - 52ND STREET
REPAIR LOG

Date	Personnel/Company	System Address	Description of Problem	Description of Modification or Repair

Log shall be kept on file by environmental consultant and/or property owner.