



# Breathe Easier, WORK SAFER

MSA

Many companies ignore respiratory protection. Here's what you must know now.

**E**very day, painting and wallcovering contractors are exposed to chemical substances and working environments that have potentially harmful—even fatal—health consequences. Just the risk of cancer is high.

“Occupational exposure as a painter is carcinogenic [cancer-causing],” scientists with the World Health Organization’s International Agency for Research on Cancer reported in December.

Studies have found higher levels of genetic damage in painters, as well as a “small but significant” increased risk of lung cancer and bladder cancer. Increased leukemia rates have also been found in the children of women who worked as painters before or during pregnancy.

Not every exposure risk can be pinpointed or eliminated, so protective measures are critical. These may include engineering controls, such as better ventilation; administrative controls, such as shortened work periods; respiratory protection—or a combination of all three.

Unfortunately, the evidence shows, employers and employees often ignore these measures, risking health and legal liability in the process.

### High risk, low compliance

Spray painting, abrasive blasting, welding, grinding, chipping and other special trades activities commonly involve hazardous airborne chemicals. For example, metal fumes from welding and thermal cutting can cause metal fume fever or lead intoxication; silica (a component in sand and in rocks like sandstone and granite) from abrasive blasting, grinding and chipping can cause silicosis; solvents from metal cleaning and isocyanates from painting and coating metals can cause work-related asthma; and asbestos from disturbing insulation causes asbestosis or mesothelioma.

In painting and wallcovering, monitoring by the Occupational Safety and Health Administration has found a wide range of exposures—including up to 30 times the current federal Recommended Exposure Limit (REL) for lead.

Such exposures demand evaluation and, usually, respiratory protection. By law, employers must determine

their workers' exposure and provide protection whenever other measures fail to reduce exposure below recommended limits.

When respiratory protection is necessary, it must be used as part of a complete respiratory protection program as required by OSHA and recommended by the National Institute for Occupational Safety and Health under 29 CFR 1910.134, 1926.62 (for protection against lead) and 1926.1101 (for protection against asbestos).

And yet, noncompliance is widespread, OSHA has found. Its *Survey of Respirator Use and Practices* raises serious questions about how today's actual practices jibe with federal regulations and recommendations. The survey assessed respirator use at 40,002 randomly selected private U.S. establishments in 2001, yielding the most recent data available.

This report focuses on findings from the survey's Special Trade Contractors industry, which includes 4.2 million painting and wallcovering contractors, electricians, carpenters, plumbers and other special trades workers.

### Requirements: The basics

Employers are responsible for providing appropriate protective equipment, based on air sampling at the worksite (or a worksite with similar operations). If the exposure is determined to be:

- **Above the Recommended Exposure Limit, but less than 10 times the REL:** A half-face air-purifying respirator (APR) is the minimum level of protection.
- **Less than 25 times the REL:** A powered air-purifying respirator (PAPR) may be used with loose-fitting hood or helmet equipped with appropriate gas/vapor cartridge and/or high-efficiency particulate filter (depending on the contaminant). Or a continuous-

flow supplied-air respirator with hood or helmet may be used.

- **Up to 50 times the REL:** Workers may use a full-face APR, a half- or full-face PAPR, or a half- or full-face supplied-air respirator in continuous-flow or pressure-demand mode.
- **Up to 1,000 times the REL:** A half-mask pressure-demand supplied-air respirator may be used.
- **Up to 2,000 times the REL:** A full-facepiece pressure-demand supplied-air respirator may be used.
- **Up to 10,000 times the REL:** Either a full-facepiece pressure-demand supplied-air respirator with auxiliary pressure-demand self-contained breathing apparatus (SCBA) or a full-facepiece pressure-demand SCBA is acceptable.

### Protection problems on site

An effective respirator program is a comprehensive roadmap that details everything from medical assessment of workers to cartridge replacement schedules. It's no surprise that companies fall short in some areas, but OSHA has found serious compliance problems almost across the board.

Each of the survey questions below, from OSHA's *Survey of Respirator Use and Practices*, is based on OSHA requirements and NIOSH recommendations and examines an important part of an effective respirator program. Many show significant non-compliance ("The Reality."). A "Reality Check" follows each finding, outlining federal laws and recommendations for that area.

#### 1. Has management adopted a written program that determines how respirators are used?

**Reality:** More than two-thirds (69 percent) of companies that use respirators have no written program.

**Reality Check:** OSHA requires a written program with work-site spe-

cific procedures for selecting, using, fit-testing and storing respirators; evaluating the respirator program; medically evaluating workers; training workers about respiratory hazards and respirator use and limitations; and ensuring adequate quality, quantity and flow of air for air-supplying respirators.

#### 2. Does the program include written procedures for maintaining respirators?

**Reality:** Six of 10 respirator-using establishments either did not include such procedures or did not know if they had them.

**Reality Check:** Respirators must be cleaned after each day's use and stored properly to prevent skin rashes. Respirators must be periodically inspected for degradation of straps, facepieces and valves, with repairs or replacements made as needed.

Respirators used in routine situations must be inspected before each use and during cleaning. Respirators maintained for emergency situations must be inspected at least monthly and checked for proper function before and after each use. Filters must be changed regularly (see Question 11, below).

#### 3. Are employees assessed for medical fitness to wear respirators?

**Reality:** Of respirator-using establishments, 57 percent did not do an assessment or did not know if one had been done.

**Reality Check:** Because respirators may overly burden susceptible workers, employers must obtain a written determination from a physician or other licensed health care provider regarding a worker's ability to use a respirator. That determination may be based upon responses to the OSHA screening questionnaire and, if necessary, a medical examination.

See *RESPIRATOR* on next page

# HYDE®

## Don't Buy More Paint.

### Buy a PaintMiser® 10-in-1 Tool.

For details, call 800-USA-HYDE or visit [hydetools.com](http://hydetools.com)



CLEANS INSIDE



CLEANS OUTSIDE



CLEANS THE RIM

Get 7% More Paint out of Every Can!

### For a better finish, start with HYDE.™

[www.hydetools.com](http://www.hydetools.com)

© 2008 Hyde Tools, Inc. All rights reserved. 15306

Circle No. 11 on Reader Service Card

*RESPIRATOR from last page*

**4. Is the respirator program administered by a trained person?**

**Reality:** Nearly half (47 percent) of respirator-using establishments have no trained program overseer.

**Reality Check:** A trained respirator program administrator is required to oversee the program for that company or site. The amount and type of training needed depend on the complexity of the respirators used and the hazards encountered.

**5. Does the program provide training regarding the need, use, limitations and capabilities of respirators?**

**Reality:** More than half—53 percent—of respirator-using establishments provided no such training.

**Reality Check:** Training is needed to ensure that workers understand the health effects of dusts and chemicals, use the right type of respirator

for the job, wear it properly, and know its limitations.

**6. Are wearers of tight-fitting respirators fit tested?**

**Reality:** Nearly half—47 percent—of companies that used tight-fitting respirators in the construction industry did not provide fit testing or didn't know if fit testing was conducted. (Due to the small number of responses, no percentage could be calculated for the Special Trades Contractors.)

**Reality Check:** A fit test as described by OSHA must be conducted to determine that a selected respirator fits and can be adjusted to prevent leaks. Such tests may use quantitative techniques or qualitative tests using odors such as banana oil, saccharine or the bitter compound known as Bitrex.

## Respiratory Program Resources

Many resources are available to help employers choose appropriate respiratory protection and develop a protection program. Among them:

- **OSHA** offers a comprehensive guide to respirator selection at [http://www.trustcrm.com/ectny/respiratory\\_advisor/mainpage.html](http://www.trustcrm.com/ectny/respiratory_advisor/mainpage.html). The site includes an interactive feature, The Advisor Genius, to help with selection.
- **National Institute for Occupational Safety and Health:** *NIOSH Respirator Decision Logic* (Publication No. 87-108). NIOSH Help Line 1-800-35 NIOSH. Or visit <http://www.cdc.gov/niosh>.
- **American National Standard for Respiratory Protection** (ANSI Z88.2): American National Standards Institute ([www.ansi.org](http://www.ansi.org)), 11 West 42nd Street, New York, N.Y. 10036.
- **Respirator and chemical manufacturers** provide information through product literature, Material Data Sheets, company reps and telephone help lines.
- **American Industrial Hygiene Association** (exposure measurement and estimation): [www.aiha.org](http://www.aiha.org).
- **The National Library of Medicine's TOXNET** (chemical hazards): <http://toxnet.nlm.nih.gov>.

7. Does the program require use of the manufacturer's instructions or NIOSH certification labels to adjust the airflow for airline respirators?

**Reality:** Across the construction industry, 81 percent of establishments using airline respirators did not require the use of instructions or labels or did not know how airflow was adjusted.

**Reality Check:** Air flow in an airline respirator must be properly adjusted to ensure adequate flow to the user and prevent infiltration of dust and chemicals. In addition, the length of air hoses is limited by NIOSH certification to assure sufficient air flow.

8. Do written procedures include regularly scheduled evaluations of the effectiveness of respirators used at the establishment?

**Reality:** More than three of four respirator-using establishments (78 percent) included no evaluation or were unaware if evaluations had been conducted.

**Reality Check:** Employers should conduct evaluations to determine if proper respirators are being used for changing conditions. These evaluations should include feedback from workers, to see if respirators are interfering with work performance.

9. Are dust masks (filtering-face-piece respirators) used only to protect only against dusts—not gases or vapors?

**Reality:** One in five respirator-using construction companies admitted pushing the use of dust masks beyond dust protection. (No figure was available just for special trades.)

**Reality Check:** Dust masks should be used only for dust protection. If gases or vapors are a hazard, respirators with chemical filtering cartridges or air-supplied respirators may be required.



MSA

Employers are required to provide respiratory protection when workers are exposed to harmful levels of paints and other toxins.

10. Are airline respirator couplings incompatible with other gas systems at the company?

**Reality:** Nearly one-fourth (24 percent) of the construction industry did not assure this incompatibility.

**Reality Check:** Incompatibility of airline couplings is critical to preventing the accidental—and fatal—connection of a respirator hose to a source that could contain nitrogen, argon or another asphyxiant.

11. Is there a written change-out schedule for air-purifying gas/vapor filters?

**Reality:** A full 87 percent of respirator-using establishments using gas/vapor filters had no written change-out schedule.

**Reality Check:** A change-out schedule is essential to replace spent cartridges. Workers cannot reliably tell when a cartridge is no

See **RESPIRATOR** on next page

## KTA Challenge #13

### What Caused This Failure?

Win a \$500 KTA gift certificate redeemable for KTA products or services



**Problem:** A KTA product was applied to the surface of a metal part. When the product was applied, the coating was easily removed.

Visit [www.kta.com](http://www.kta.com) on or before February 8, 2008 for contest rules and clues regarding this failure, and to submit your answer.

**Good Luck From KTA** – your premier source of inspection instrumentation, coatings consulting, laboratory analysis, training and coatings/welding inspection services.



KTA-Tator, Inc. • 115 Technology Drive • Pittsburgh, PA 15275  
412.788.1300 • 412.788.1306 • fax • [www.kta.com](http://www.kta.com) • [www.ktagage.com](http://www.ktagage.com)

Circle No. 101 on Reader Service Card

# Respiratory Protection FAQ

Here are some Frequently Asked Questions about respiratory protection. For information about your company or exposure, consult a health and safety professional and/or OSHA's *Small Entity Compliance Guide*.

**Note:** Exposures can vary greatly from day to day and from worker to worker. Err on the side of over-protection.

## Q: What hazards do painting and wallcovering workers face?

A: The long list includes lead, silica, asbestos and other dusts and fibers; fumes from welding or industrial processes; spray mists; acetylene, nitrogen and carbon monoxide gases; vapors from solvents; and bacteria, viruses, fungi and other biological hazards.

## Q: What is OSHA's Respiratory Protection standard?

A: The standard (adopted in 1971 and revised in 1998) requires employers to establish and maintain a comprehensive program to protect respirator-wearing workers.

## Q: Who needs a protection program?

A: Generally, a company must have a program whenever employees are required to wear respirators—for example, when workers:

- Work where oxygen levels may be insufficient;
- May be exposed to hazardous gases or vapors; or
- Are exposed to dust, mists, fumes, sprays and other airborne particles and hazards.

## Q: What must a program include?

A: Specifics depend on the com-

pany and the exposure but typically include:

- Procedures for selecting, fit-testing, using, maintaining, storing and discarding respirators.
- Training employees in respirator use.
- Medically evaluating employees.

## Q: Who pays for respiratory protection?

A: Employers must provide all required respirators, training and medical evaluations. (See *News*, on page 4, for OSHA's latest ruling on this issue.)



MSA  
Pressure-demand  
Air-Line Respirator

## Q: Can't I rely on a worker's ability to smell or detect a hazardous substance?

A: No. Most toxic substances do not have odor or irritant warning properties. Some are detectable only after they've exceeded exposure limits. Individual senses of smell vary greatly and, in fact, are likely to be dulled by the contaminants themselves.

## Q: How do I choose a respirator?

A: Respirator models come in many models; selection depends on the exposure and on workplace and user factors that may affect performance and reliability. (See *Resources*, on page 64 for help in making this important decision.)

## Q: How often should I change my respirator's filter cartridges?

A: A cartridge's service life depends on many factors. Employers must provide a written replacement schedule that includes the information used to determine it. OSHA schedules are available at [http://www.osha.gov/SLTC/etools/respiratory/change\\_schedule.html](http://www.osha.gov/SLTC/etools/respiratory/change_schedule.html).

*RESPIRATOR* from last page longer operating properly. Filtering elements need to be changed often enough to prevent saturation with chemicals or clogging with dust.

## The bottom line

Overall, a whopping 81 percent of companies (about 32,634 establishments) reported three or more indicators of a potentially inadequate respiratory protection program. Dust, paint vapors, solvents, silica dust, lead, hydrogen sulfide, carbon monoxide, asbestos, welding fumes and toluene were the substances for which respirators were most frequently used.

The bottom line: Many special trades, including paint and wallcovering contractors, need to improve their respiratory protection programs. Help is available to do so.

Employers may contact OSHA for a free, confidential consultation. OSHA's *Small Entity Compliance Guide for the Revised Respiratory Protection Standard* is available at <http://www.osha.gov/Publications/secgrev-current.pdf>. Other resources are listed in "Respirator Program Resources."

This article was written by Brent Doney, Mark Greskevitch, Girija Syamlal and Ki Moon Bang of the National Institute for Occupational Safety and Health (NIOSH), Division of Respiratory Disease Studies, and by Dennis Groce of EG&G Technical Services Inc. of Pittsburgh, PA.

**Disclaimer:** Mention of commercial products or trade names does not constitute endorsement by the Centers for Disease Control and Prevention or the National Institute for Occupational Safety and Health. The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the National Institute for Occupational Safety and Health.



MSA  
Full facepiece,  
Twin cartridge

# POWCO

PAINTING & WALLCOVERING CONTRACTOR

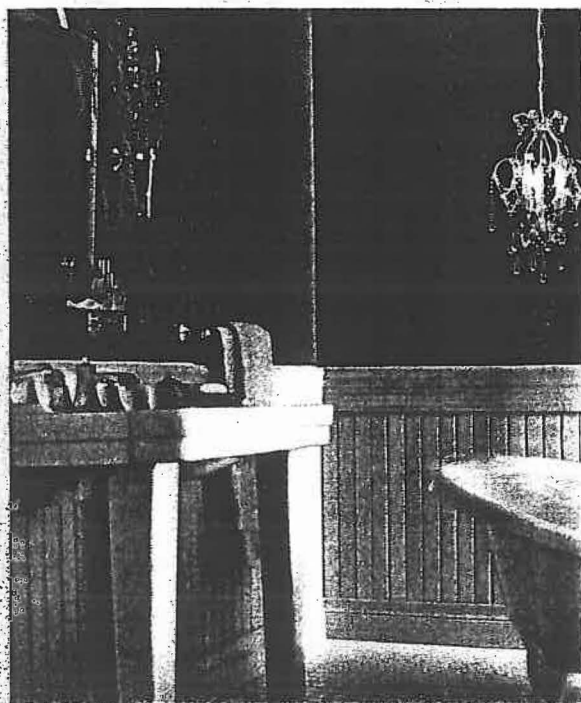
JANUARY/FEBRUARY 2008

## Mastering Plasters

plus:

**Smarter Staffing**  
**Safety Update**  
**Better Bathrooms**  
**Win with the Web**

## CONTENTS



# 14 Create a Bathing Beauty

*Sherwin-Williams*



# 58 Grand Finale

*EverGreene Studios Inc.*

## features

- 14 Create a Bathing Beauty** Paint a better bathroom? It's easier than you think.  
by Cynthia Challener
- 23 10 Steps to Better Hires** Don't just hire; hire well. Here's your game plan for smarter staffing. by Robert A. Fortune Jr.
- 28 The Way to Spray Today** Lasers, virtual reality and other cool innovations: This isn't your father's airless sprayer. by Mick Lee and Lea Schellhorn
- 38 Plaster Fit for a Master** Take that, Michelangelo: Today's Venetian plasters offer stunning results. by Jamie Jackson
- 48 Winning on the Web** It's the 21st Century: Do you know where your prospects are—and how to reach them? by Terri Pilcher and Molly Atkins
- 58 Grand Finale** Can a facelift shave 130 years from your appearance? This one did.  
by Patricia Zimmerman
- 62 Safety Alert** Today's work environment is dangerous—and your protection is probably inadequate. Here's what you must know now.