Product Data

BFGoodrich
WALLCOVERINGS

The BFGoodrich Co., 500 S. Main St., Akron, OH 44318

Life Saving Wallcovering

Life Saving Wallcovering

BFGoodrich has developed a "smart" vinyl wallcovering that gives off an Early Warning Effect™ when it "senses" a fire before the fire ignites. This can save lives by giving people extra time to leave a room before there's smoke or open flames.

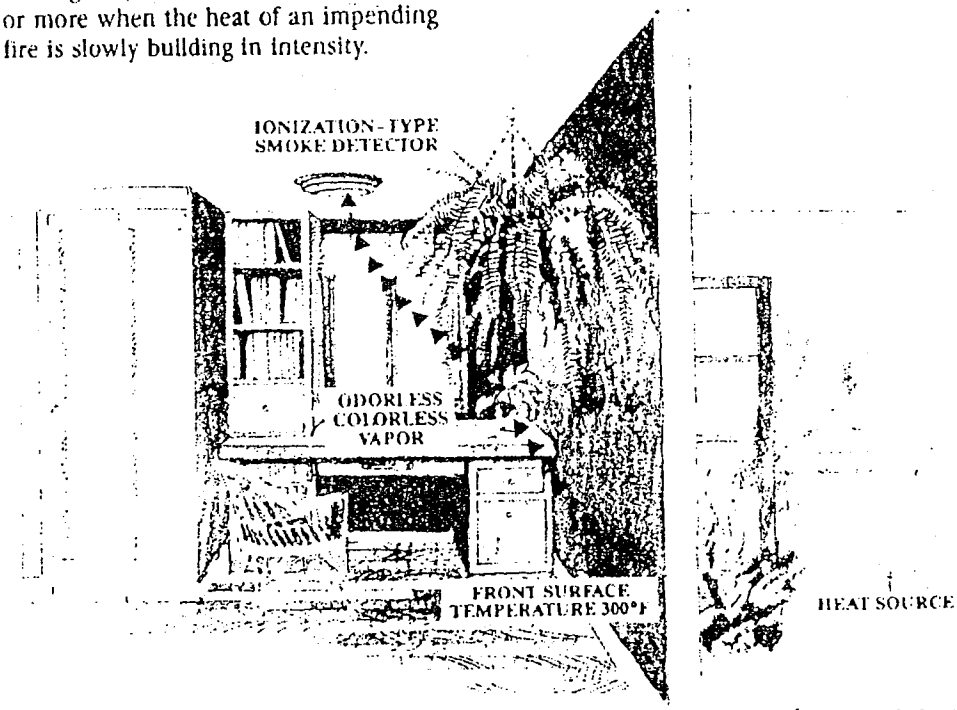
The life saving time made possible by this Early Warning Effect can vary from only a few seconds, in the case of a fast moving fire, to as much as a half an hour or more when the heat of an impending fire is slowly building in intensity.

This Early Warning Effect works when as little as one (1) square foot of Koroseal,® Cosmos™ or Cornerstone™ vinyl wallcovering is heated to about 300 degrees Fahrenheit—well below the ignition point of most common room materials. At that point, the vinyl wallcovering gives off an odorless and colorless vapor that will set off the alarm on an ionization-type smoke detector.

Consumer Reports magazine recently ran an article that claimed that more than 85% of the commercial smoke detectors installed in the U.S. are ionization-type.

Several years of research into the ionization effect of heat on various materials led to this discovery by the BFGoodrich Research & Development laboratory in Brecksville, Ohio. The efficacy of the Early Warning Effect was demonstrated recently in a series of tests conducted by an independent test laboratory in Texas.

This Early Warning Effect formulation can be found in almost all of BFGoodrich Koroseal, Cosmos or Cornerstone wallcoverings.



Some Questions and Answers about the BFGoodrich Koroseal Vinyl Wallcovering Early Warning Effect

Q. How does the Early Warning Effect work?

A. If you heat a one square foot section of BFGoodrich Koroseal Vinyl Wallcovering to 300 degrees Fahrenheit, it gives off an odorless and colorless vapor that will trigger an ionization smoke detector alarm.

Q. How does 300 degrees Fahrenheit compare to the temperature it takes to start a fire?

A. 300 degrees Fahrenheit is well below the temperature needed to ignite most common room materials. Here are some examples of the ignition temperatures of common materials:

Materials	Degrees, F.
Paper, newsprint	445
Cotton	490
White Pine, Shavings	500
Polyethylene	660
Polyurethane foam, rigid	780
PVC	850
Nylon, fiber	990

Q. What are ionization-type smoke detectors and how common are they?

A. Ionization-type smoke detectors utilize a low-level radiation source to generate a beam that can be interrupted by charged particles. It is the single most popular smoke detector on the market today. A recent Consumer Reports article estimated that 85% of the commercial smoke detectors in use today are ionization-type.

FPD-88-DP-3036

Litho in U.S.A.

BFGoodrich

Cleaning instructions for Koroseal® vinyl wallcovering

Stains should be removed as quickly as possible to eliminate any possible reaction between the staining agent and the wallcovering. (Not as critical with products coated with Tedlar* film.) Time is especially important for removing materials containing colors or solvents such as ball point ink, nail polish, lipstick, oil shampoo tints, paint, lacquer or enamel and some foodstuffs.

Precautions: Excess soiling materials such as chewing gum, asphalt, crayon, paint, nail polish or tar should be carefully scraped off prior to other cleaning attempts.

It is desirable to start cleaning with mild ingredients such as soap—detergent and water. If necessary, stronger cleaners can be used such as liquid household cleaners (with or without ammonia), rubbing alcohol, and solutions up to 3% of hydrogen peroxide, turpentine, gasoline or kerosene. High strength detergents, chlorine bleaches, abrasive household cleansers, rubbing alcohol, hydrogen peroxide, turnpentine, gasoline and kerosene should first be tried on some inconspicuous portion of Koroseal wallcovering to make sure that there will not be any adverse effect on print (if any), color or gloss.

Gasoline, kerosene, and turpentine are explosive and should be handled carefully. NEVER MIX CLEANING REAGENTS TOGETHER—VIOLENT REACTIONS MAY OCCUR WHICH COULD RESULT IN SERIOUS INJURY. OBSERVE ALL LABEL PRECAUTIONS WHEN USING THESE AND ANY CLEANING AGENTS.

Repeated use of stronger cleaners will extract plasticizer from vinyl wallcovering causing the wallcovering to lose its suppleness.

Reagents:

Normal dirt

This can be removed with a mild soap or detergent and warm water; allow to soak for a few minutes, then rub briskly with a cloth or sponge. Use a soft bristle brush on rough textured patterns, rinse with clear water, then wipe with a clean dry cloth. Repeat if necessary.

Nail polish, shellac, lacquer

Remove immediately with dry cloth and be careful not to spread the stain. Go over quickly with rubbing alcohol and then rinse with clear water.

Paint, shoe polish, rubber heel marks, car grease, tar—asphalt

Wipe off as much as possible, then clean with kerosene or turpentine. Rinse thoroughly with clear water.

Ball point ink

Must be removed immediately, using a cloth dampened in rubbing alcohol.

Chewing gum

Wipe off as much as possible (will come off easier if rubbed with ice cube), then rub lightly with rubbing alcohol. Can also use kerosene or naphtha.

Pencil, crayon

Scrape off excess crayon. Erase pencil marks. Wipe any remaining stains with rubbing alcohol.

Fecal, blood, urine

Remove these staining materials quickly; wash stained area using a strong solution of soap and household-type chlorine bleach, rinse with clear water.

*DuPont registered trademark
- BFGoodrich

Agents to remove stains from BFGoodrich wallcovering with Tedlar* film

e key:

0. Dry paper towel
1. Damp paper towel
2. Mild soap and water
3. High strength household detergent (full strength)
4. Solvent (Toluene)

Stains

Acetic Acid (5%)	0
Acetone	0
Alcohol	0
Ammonia (10%)	0
Amyl Acetate	1
Beet Juice	1
Bluing	1
Bromocresol Green in Methyl Alcohol	1
Carbon Tetrachloride	0
Catsup	2
Cigarette Smoke	1
Citric Acid (10%)	1
Chocolate Syrup	1
Coffee	1
Crayon (wax)	2
(Cream	2
Detergent	1
Dye (hair)	1
Dye (clothes)	1
Fluorescin Sodium	1
Fly Spray (Flit)	2
Gasoline	0
Grease	2
Grape Juice	1
Hair Oil	2
Hand Soap	1
Hydrochloric Acid (5%)	0
Hydrogen Peroxide (30%)	0
Hypochlorite Bleach	1
Insect Spray (Raid)	2
Ink (Ball Pen)	3
Ink (Higgins Drawing)	1
Ink (Marking Pen)	3
Ink (Permanent)	1
Ink (Washable)	1
Ink (Stamp Pad)	1
Jam, Jelly	1
Lard	0
Lipstick	3
Lye Solution	1
Methyl Purple	1
Methyl Red	1
Methylene Blue in Phenol Indicator	1
Mercurochrome	2
Merthiolate	1
Milk	1
Moth Spray	1
Motor Oil	2
Mustard	1
Nail Polish	4
Nitric Acid (5%)	0
Olive Oil	2
Pencil	1
Phenol (5%)	1
Phenol Red (1%)	1
Phenol Blue	1
Potassium Permanganate in water (10%)	1
Permanent Eyelash Darkener	1
Rubber Scuff Marks	1
Salad Dressing	1
Shoe Polish	2
Silver Nitrate	2
Silver Protein	1
Sodium Bisulfate	1
Sodium Bisulfite	1
Stainless Mercresin	0
Synthetic Perspiration	1
Sulfuric Acid (5%)	0
Tea	2
Trisodium Phosphate	1
Tomato Juice	2
Turpentine	2
Urea	1
Urine (Canine)	1
Vinegar	1
"Vitalis" Hair Oil	2
Water	0
"Wright" Blood Stain	2

A soft bristle brush will aid in cleaning deeply embossed grains.

Agents to remove stains from BFGoodrich wallcovering without Tedlar* film

Table key:

1. Mild soap and warm water
2. High strength household detergent
3. Strong solution of soap and chorine bleach
4. Ice cube
5. Cleaning fluid
6. Kerosene or turpentine
7. Rubbing alcohol

Stains

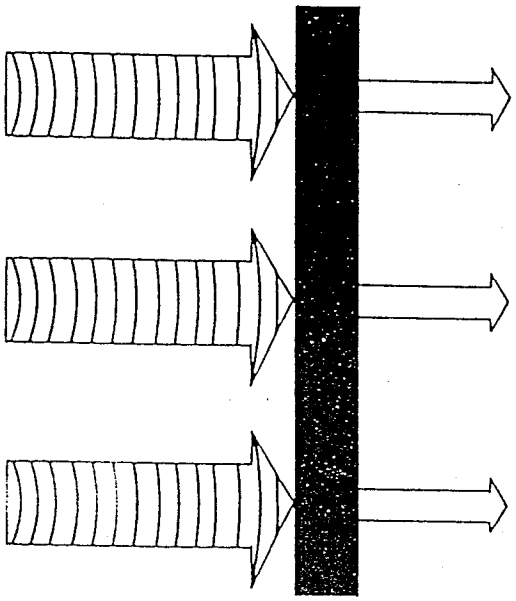
Asphalt*	5-6
Automobile grease	5-6
Ball point ink*	7
Blood*	3
Catsup*	1
Chewing gum	4
Coffee	1
Crayon	1-7
Fecal matter*	3
Lacquer*	7
Motor Oil	1
Mustard*	1
Nail polish*	5
Normal dirt	1
Paint*	6
Pencil marks	7
Rubber heel marks	5-6
Shellac*	7
Shoe polish*	5-6
Tea	1
Tomato juice	1
Tincture of merthiolate*	7

A soft bristle brush will aid in cleaning deeply embossed grains.

*These items may impart permanent stain if not removed immediately.

3.3.2

SOUND CONTROL PERFORMANCE OF OPERABLE WALLS



- Fundamentals of acoustics
- NSSEA product testing certification
- Sound control design considerations

Operable Wall Manufacturers Association Section
National School Supply and Equipment Association

OWMA / NSSEA

THE SIGNIFICANCE OF SOUND CONTROL AND OPERABLE WALLS

This is not intended as an instructional course in acoustics, which is a complicated subject best handled by professionals in that field. However, some study of sound control needs to be included as a reminder that operable walls are *unique* in function — sometimes open and sometimes closed.

Some definitions are required to understand the relationship of sound control to operable walls.

SOUND

Sound, as recognized by the human ear, is comprised of two physical components, *loudness* and *pitch*.

Sound waves traveling through the air in the form of very small changes in atmospheric pressure, create what people normally refer to as *"volume"* or *"loudness"*.

Changing of frequencies creates longer and shorter sound waves, which are heard as *"pitch"* — from low to high in range.

MEASURING SOUND

Loudness is measured in *"decibels"* (db). The dynamic range of human hearing is from 0 to 120 decibels.

Pitch is measured in *Hertz* (Hz), designating frequency in cycles per second. The average human ear has an audibility range of from 125 Hz to 4000 Hz (125 to 4000 cycles per second).

NOISE

"Noise" has been defined as "loud, confused, or disturbing sound of any kind". When sound from any one area of a building is loud enough to disturb what is taking place in an adjoining area, it is "noise". An operable wall must adequately control unwanted sound or *noise*.

COMMON LOUDNESS LEVELS

Some familiar sounds provide an idea as to the decibel levels people encounter every day:

10db	Human breathing
30db	Soft Whisper
40db	Average Home
50db	Average Office
60db	Conversation (3 feet)*
70db	Average Street Noise*
80db	Noisy restaurant*
80-90db	Average Factory*
110-120db	Rock Band*

*Levels of 65db to 70db are generally too loud for ordinary speech communication. When the sound pressure exceeds 120db, it normally passes the threshold of pain.

CONTROLLING NOISE

There are two ways to control unwanted sound in buildings:

1. Stop the passage of sound from one area to an adjoining area. Put another way, prevent sound *transmission* through a wall.

Walls are classified as to their effectiveness in reducing transmitted sound by assignment of a "Sound Transmission Class" (STC) based upon test performance. The higher the STC, the better performance classification.

2. Stop sound from bouncing back into the same room in which it is generated. This reflection of sound can be controlled through the *absorption* characteristics of the sound striking surfaces.

Sound absorbing effectiveness of a surface is assigned a "Noise Reduction Coefficient" (NRC), as a result of test performance. NRC describes the effectiveness *within an area*, so it has very little effect upon sound transmitted from one room to another.

SOUND TRANSMISSION CLASS (STC)

STC is a single number expression of the effectiveness of a wall in preventing the passage of transmitted sound in the range from 125 Hz to 4000 Hz. These are accepted STC values for some common building materials:

1/4"	plywood	22 STC	1/2"	fiber board	22 STC
5/8"	gypsum board	28 STC	1/16"	lead	34 STC
1/4"	plate glass	26 STC	4"	two-cell concrete block	38 STC
8"	lightweight hollow concrete block	46 STC	4"	brick wall with 1/2" plaster	45 STC
8"	brick wall	49 STC	12"	brick wall	54 STC

These are some of the accepted STC ratings for common fixed wall construction:

Standard Wood Stud (1/2" gypsum board both sides, 2 x 4 wood studs, 16" or 24" O.C.) — 33 STC

Slit Wood Stud (wood studs slit with standard saw blade to within 6" of top and bottom, 1/2" gypsum board both sides)

Without insulation	43 STC
With glass fiber blanket	46 STC

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3 5/8" Steel Channel Stud (5/8" gypsum board both sides)

Without insulation	39 STC
With glass fiber blanket	42 STC

6" Concrete Block Wall (6" hollow core dense concrete block, painted) — 43 STC

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2 5/8" Steel Channel Stud (2 layers of 5/8" gypsum board both sides)

Without insulation	45 STC
With glass fiber blanket	50 STC

Source: "Sound, Noise and Vibration Control
Lyle F. Yerges, Consulting Engineer

NOISE ISOLATION CLASS (NIC)

NIC is a single number rating (like STC) expressing the actual degree of sound control between two adjoining areas, measured at various frequency levels. NIC differs from STC in that the test is *performed on site*, and is commonly referred to as the "field test". The ASTM procedure is E336.

Field testing does provide a measure of the actual performance of the total acoustical environment.

If field tests are to be specified, we recommend consultation with the operable wall supplier.

applications

User requirements determine which product alternative will best fit the application. Broadly speaking, customers choose a Curtition model based on sound attenuation properties. There are two main categories:

Sight Dividers — The Curtition MK Series, and

Sound Dividers — The Curtition VL Series

Sight Dividers offer the most economical alternative where sound transfer between divided spaces is not a major consideration. Sound Dividers are designed to prevent varying levels of sound penetration between divided spaces. Sound dividers are rated according to their STC (sound transmission classification) properties. The Curtition VL Series provides sound attenuation properties as follows:

Product	STC Rating	Sound Attenuation Value (Between Divided Spaces)
VL2	37	Some very loud speech from adjoining space may be heard
VL6	38	Less very loud speech penetrates
VL8	40	Very loud speech audible but unintelligible
VL44	44	Very loud speech unintelligible