Kimberly-Clark

UU-0228#27

John Kyle
For your Review
Approved 2/27/86

TO WHOM IT MAY CONCERN:

Regulations promulgated by the Occupational Safety and Health Administration, specifically 29 C.F.R. 1910.1001 (d)(3), require that special protective clothing be provided for any employee whose occupational duties expose him to airborne concentrations of asbestos fibers greater than the published ceiling levels.

KLEENGUARD® Coveralls by Kimberly-Clark, composed of a unique triple-layer non-woven fabric, have been tested by several independent laboratories for asbestos barrier properties.

Results show that KLEENGUARD® Coverall fabric provides an equivalent and effective alternative to Type-14 Tyvek* fabric for asbestos handling operations.

Note: Comes in Sizes S - XXL Hoods + Shoe Covers Can be ordered Seperately

W. R. McGrath, Ph.D.
Director of Product Safety

*Tyvek® is registered trademark of Dupont.

PLAINTIFF'S EXHIBIT
UC-3986



Union Carbide trial exhibit UC-3986: Kimberly-Clark KLEENGUARD Coveralls Letter 'To Whom It May Concern' on...
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## The Competition

Tyvek coveralls are by far the most common used in asbestos abatement. DuPont has shown Tyvek to be an effective asbestos barrier.

Major problems with Tyvek garments are:

1. **Easily Ripped Seams** - that lead to worker exposure to gross amounts of asbestos.

2. **Poor Breathability** - leads to heat stress which reduces worker productivity and can cause health problems. Heat stress is a common problem in this industry due to the enclosed work area and full body covering.

Recently, spunbonded fabric has been introduced into this industry. It provides breathability and relief of heat stress, but is not a protective barrier to asbestos.

| | Protection (Barrier) | Comfort (Breathable) | Distributor Pricing Regular | Hooded | Hooded & Booted |
|---|---|---|---|---|---|
| KLEENGUARD® Coveralls | Yes | Yes | | | |
| Tyvek Coveralls | Yes | No | | | |
| Spunbond Coveralls | No | Yes | | | |

## KLEENGUARD® COVERALLS

| Feature | Benefit |
|---|---|
| Triple layer fabric with inner layer of intricately bonded microfine fibers. | Barrier Protection, less risk of carrying fiber out of job site and subsequent exposure. |
| Breathable Fabric | Comfort, less heat stress, more productivity. |
| Triple Thread Stitching | Less torn seams, reduces risk of exposure to fiber, less garment changes. |
| Elastic back and design for freedom of movement. | Less risk of snagging and tearing garment, reduces risk of exposure to fiber. |



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## CHEMICAL RESISTANCE OF POLYPROPYLENE

| | 75° F | 150° F |
|---|---|---|
| **Acids** | | |
| Acetic, 10-50% | E | E |
| Acetic, 75% | E | E |
| Acetic, glacial | G | F |
| Benzoic | E | G |
| Boric | E | E |
| Butyric | E | E |
| Chloroacetic | G | X |
| Chromic | E | G |
| Citric | E | E |
| Fluoboric | G | G |
| Hydrobromic, 25% | G | F |
| Hydrochloric, 10% | E | E |
| Hydrochloric, 37% | G | F |
| Hydrocyanic | G | G |
| Hydrofluoric | G | G |
| Hypochlorous | G | G |
| Lactic | E | E |
| Maleic | E | E |
| Mineral, general, weak | E | E |
| Mineral, general, strong | E | E |
| Nitric, 5% | G | F |
| Nitric, 65% | X | X |
| Oleic | G | F |
| Oleum | X | X |
| Oxalic | E | E |
| Oxidizing, general | F | F |
| Perchloric | E | G |
| Phosphoric, 25% | E | E |
| Phosphoric, 85% | E | E |
| Phthalic | E | E |
| Sulfuric, 10% | E | E |
| Sulfuric, 78% | G | X |
| Sulfuric, 93% | F | X |
| Tannic | E | E |
| Tartaric | E | E |
| **Alkalies** | | |
| Alkalies, general, weak | E-G | E-G |
| Alkalies, general, strong | E-G | E-G |
| Ammonium hydroxide | E | E |
| Calcium hydroxide | E | E |
| Potassium hydroxide | E | E |
| Sodium hydroxide | E | E |
| **Acid Salts** | E | E |
| **Alkaline Salts** | E | E |
| **Neutral Salts** | E | E |
| **Miscellaneous Salts** | | |
| Potassium dichromate | E | G |

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| | 75° F | 150° F |
|---|---|---|
| Potassium permanganate | E | G |
| Sodium cyanide | E | E |
| Sodium ferricyanide | E | G |
| Sodium hypochlorite | G | F |
| **Organics and Solvents** | | |
| Acetone | F | X |
| Alcohol, methyl | E | E |
| Alcohol, ethyl | E | E |
| Alcohol, butyl | E | E |
| Alcohol, general | E | E |
| Aniline | E | E |
| Benzene | F | X |
| Carbon disulfide | X | X |
| Carbon tetrachloride | X | X |
| Chlorobenzene | F | X |
| Chloroform | X | X |
| Esters, general | E-G | E-G |
| Ethyl acetate | G | X |
| Ethylene chloride | F | X |
| Ethylene dichloride | F | X |
| Ethyl ether | X | X |
| Formaldehyde, 37% | E | G |
| Gasoline | X | X |
| Heptane | F | X |
| Hydrocarbons, aliphatic | G-F | G-F |
| Hydrocarbons, aromatic | G-F | G-F |
| Ketones, general | E-G | E-G |
| Methylene chloride | X | X |
| Methyl ethyl ketone | F | X |
| Nitrobenzene | F | X |
| Phenol | G | G |
| Toluene | F | X |
| Trichloroethylene | X | X |
| **Gases** | | |
| Carbon dioxide | E | E |
| Carbon monoxide | E | E |
| Chlorine, dry | F | X |
| Chlorine, wet | F | X |
| Hydrogen sulfide | E | E |
| Sulfur dioxide, dry | G | F |
| Sulfur dioxide, wet | G | F |
| **Other** | | |
| Oils; veget, anim, min | G | G |
| Fungi, bacteria | E | E |



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KEY

E- excellent
G- good
F- fair
X- unacceptable

Data compiled from the following sources:

Handbook of Plastics & Elastomers, Charles A. Harper, Editor in Chief, 1975.

CRC Handbook of Chemistry and Physics, Robert C. Weast, Ph.D., Editor, 60th Edition, 1979.



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