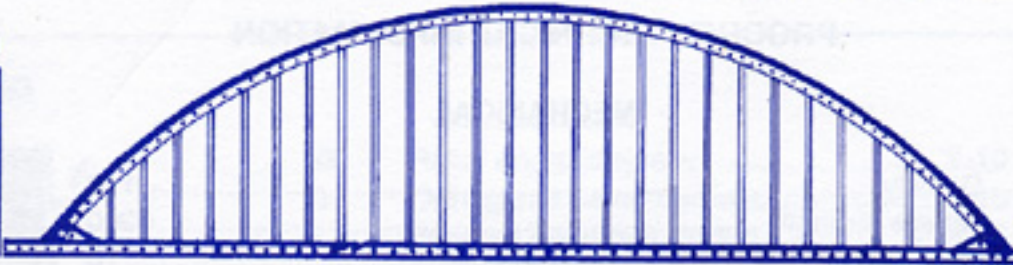


# Florida & Caribbean

MANUFACTURERS REPRESENTATIVES  
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## CLEAN — WALL PANEL SYSTEM

### PHARMACEUTICAL



CLEAN ROOMS



SHOWER AREAS



### HOSPITALS



SURGICAL SUITES

### ULTRA HYGIENIC PANELS

HEAT WELDABLE TO ITSELF AND TO VINYL FLOORING RESULTING

IN A SEAMLESS MONOLITIC WALL IDEAL FOR CLEAN ROOM

SPECIFICATIONS

Sheets P.V.C. Solid thru color  
4' x 8' White or 4' x 10'  
4' x 10 beige — Semi-mate  
Thickness — 2mm (approximate)

## SPECIFICATIONS

### PRODUCT TECHNICAL INFORMATION

#### MECHANICAL

Density .....	140
Tensile strength.....	6960
Elongation at tear .....	10
Flexural Strength .....	10,875
Modulus of elasticity .....	300,000
Impact Strength .....	3.75
Shore Hardness .....	81
Water Absorption .....	.08

#### THERMAL

Deflection Udder/Loud (HDT) .....	151
Coef. of Linear Expansion*** .....	
Thermal Conductivity .....	.92
Vicat Softening.....	167

\*\*\* To change FTOC see table  
Expansion or Conversion Tables

## APPLICATIONS

Clean rooms, laboratories, hospitals, animal holding areas, morgues, corridors with cart traffic, bumpers for swinging doors, wet rooms, food processing areas, fermentation room, operating suites, burn centers, and wherever absolute hygienic cleanliness is a requirement or walls are being marred by repeated bumping by wheeled vehicles.

## CHEMICAL RESISTANCE

A random list, wherein clean wall panels resistance is excellent, would include, the following acids: acetic, butyric, fluoroboric, hydrochloric, sulfuric, and silver nitrate. See full resistance chart in catalog.

## TESTING

ASTM E84 Flame Spread Rating (Tunnel Test): Class A (25 or less)

Clean wall panels has been tested for specific gravity, yield strength, break strength, ultimate elongation, shear strength, hardness, vicat softening point, izod impact strength, heat deflection, water absorption, dielectric strength, and volume resistivity. See exact test results in our specifications.

## MAINTENANCE

Clean wall never requires painting or any sealer. It is virtually maintenance free; simply wash with a mild soap solution as necessary.

Further details about wall coverings are available upon request.

## ELECTRICAL & FIRE

Surface resistance .....	$2 \times 10^{15}$
Volume Resistance .....	$10^{16}$
Flammability .....	B <sub>1</sub>
B5476 Part 7 .....	Class 1
UL 94 .....	V0

## AVAILABILITY & TOLERANCES

Sheet size .....	4 x 8
Gauge .....	Inches .40 - 1/2
.....	1 - 13 mm
Color .....	White
.....	Beige
.....	Lt. Gray
Thickness Tolerance .....	$\pm 4 - 7$
Width Tolerance .....	- 0 + 3/16
Length Tolerance .....	- 0 + 1/4

## LAMINATING OR BONDING

The use of adhesives for laminating clean wall Panels to secondary substrates as well as themselves is simple and effective. Laminating and Bonding methods are similar to those use in fabricating acrylic and other rigid PVC products.

### Adhesives



Solvent based materials containing THF (TetraHydroFuran) and MEK (Methy Ethyl Ketone) are the most commonly used PVC adhesives. Also manufactures KORACOLL FE, PVC solvent adhesive, as well as APTK (Cyanoacrylate). Neoprene based solvent cements and two-part urethane systems can be used for bonding Clean Room Panel to secondary substrates. For non-stress applications such as photo mounting and thin gauge laminations, pressure sensitive tapes and transfer adhesives can be used.

### **PREPARATION AND PROCEDURES:**

To insure optimum bond strength, the surfaces to be joined should be dry, clean and grease free. Cleaning can be done with isopropyl alcohol, Naphtha or R100C CLEANER. Bond strength can also be enhanced by pre-treating the Clean Wall Panels with a damp solvent-soaked cloth.

When joining saw cut parts the joining surfaces should be flush. Adhesives cannot be used to fill gaps. Adhesives are normally applied in smooth even coats and are allowed to get tacky prior to pressing the substrates together.

Some procedures may vary with the type of adhesive. Please check the manufacturer's label prior to beginning an operation.

## SHAPING & WELDING

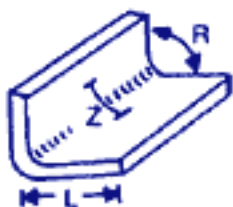
### General:

Fabrication techniques using heat, e.g., folding, bending, forming and welding can be used with, Clean Room Panels PVC sheet products. Forming methods are performed when the material IS heated to an elastic phase; welding is performed at a higher temperature range called a plastic phase. Heating can be done by using air circulated ovens, infra-red heaters or heating elements.

See Table below for heating temperatures.

Material	Thermofforming		Welding		
	Folding, bending, pressure forming	Deep-drawing	Hot Gas	High Speed	Heated
	°F	°F	°F	°F	1001 °F
KOMADUR	248-284	275-320	572-626	626-662	428-446

### Shaping:



Clean Room Panels has excellent properties for deep drawing. However, it IS advisable to pre-stretch the material prior to molding to give a more uniform wall thickness. Shrinkage of up to 1% can be expected.

Other shaping methods such as bending and folding can be done using a minimum bending radius of 2-3 times the material thickness. The heating zone for the bend should be 5 times the material thickness, and the length of the bent portion should be at least 20 times the gauge to avoid stresses (see drawing).

L = length of bent leg R = bending radius Z = heating zone

### Welding:



For welding Clean Room Panels, a clean oil free air source should be used to heat the material. Joining is done under pressure. The hot air temperatures (air flow 40-60 l / min) given in the table are measured in the welding nozzle. Fillet welds are recommended for thin gauge materials, where single "V" welds can be used 1/8"-3/8" sheet, and double "V" welds for materials greater than 3/8". When using the double "V" weld method, the welding rods should be applied on alternating sides to avoid distortion. Type 1, grade 1, PVC weld rod is compatible with all Kömmerling products. Welding can also be done by using a heated tool. The heated tool can be used for bending or butt welding sheets together. Heating is accomplished by pressing the sheet against the heated tool until a small bead forms

(1/32"-3/32"), at which time the materials are joined and allowed to cool under pressure. The heated tool bending process is normally done with a "V" shaped tool. The angle of the "V" should be 15-20 degrees less than the desired angle. For 90 degree bends a 60 degree tool is normally used.

The tool is allowed to penetrate 65-70% of the thickness to achieve the best results.



Fillet Weld



"V" Weld



Double "V" Weld

**DRILLING**



- $\alpha$  Relief angle (degrees) ..... 8-10
- $\beta$  Angle of Twist (degrees) ..... 30
- Orthogonal Rake (degrees) ..... 3-5
- Point Angle (degrees) ..... 80-110
- s Forward Feed (mm/rev) ..... 0.1-0.5
- v Cutting Speed (ft/min.) ..... 15-30

**MILLING**



- $\alpha$  Relief angle (degrees) ..... 5-10
- $\beta$  Orthogonal Rake (degrees) ..... 0-15
- s Forward Feed (mm/rev) ..... 0.3-0.5
- v Cutting Speed (ft/min) ..... up to 300

**SAWING**



- $\alpha$  Relief angle (degrees) ..... 30-40
- Orthogonal Rake (degrees) ..... 5-8
- t Tooth Pitch (inches) ..... .08-32
- s Forward Feed (mm/rev) ..... 0.1-0.3
- v Cutting Speed (ft/min.) ..... up to 900

**THERMAL EXPANSION TABLE**

Temp. Change °F	Expansion in inches	
	4 ft	8 ft.
+40°	5/64	3/16
+50°	1/5	1/4
-36°	-5/64	-3/16

**CONVERSION TABLES:**

**GAUGE**

mm	Fraction (inches)	Decimal
1	5/128	.040
2	5/64	.080
3	1/8	.125
4	5/32	.160
5	3/16	.200
6	1/4	.250
8	5/16	.320
10	3/8	.375
12	1/2	.500
19	3/4	.750
24	1	1.00
30	1 3/16	1.200

**TEMPERATURE**

°C	°F
0	32
10	50
20	68
30	86
40	104
50	122
60	140
70	158
80	176
90	194
100	212

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