

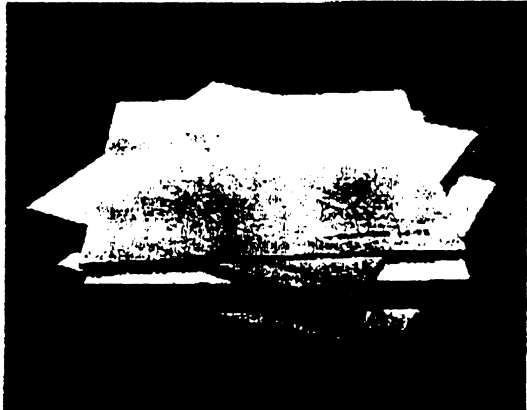
Post-it* Fax Note	7671	Date	15/196	# of pages	3
To	Neal Horner	From	Mike Mulecki		
Co./Dept	Natl Radio Astc	Co.	Pro-PAC Corp		
Phone #		Phone	908-725-5028		
Fax #	504 296 0334	Fax	908-725-6646		



1-010

M I C R O W A V E P R O D U C T S

T E C H N I C A L B U L L E T I N



ECCOSORB* AN

flexible foam sheet
broadband microwave
absorber

Description : ECCOSORB AN is a lightweight flexible foam sheet broadband microwave absorber. It is available in six standard thicknesses, depending upon the lowest desired frequency of operation. ECCOSORB AN is designed to reflect less than -20 dB of normally incident energy above specified frequencies) relative to a metal plate. It is also effective in reducing surface current waves on metal shapes.

Suggested End Use : Applications include :

- * Reducing crosstalk between adjacent antennas
- * Shrouding antennas to improve the antenna pattern
- * Absorbing undesired backlobes
- * Selective shadowing of parts of a target for RCS measurements
- * Shadowing of posts and supports in anechoic chambers
- * Absorbing blankets for testing radar systems without harm to personnel.

Availability : ECCOSORB AN is available in square sheets of 61 cm x 61 cm, and in six different grades, for operation above the following frequencies :

ECCOSORB AN-72	above 20 GHz
ECCOSORB AN-73	above 7,5 GHz
ECCOSORB AN-74	above 3,5 GHz
ECCOSORB AN-75	above 2,4 GHz
ECCOSORB AN-77	above 1,2 GHz
ECCOSORB AN-79	above 600 MHz

ECCOSORB AN can also be supplied on special order in any desired shape or configuration, incorporating mitre cuts or attachment to metal parts.

ECCOSORB AN can be manufactured on a mandrel on special order to take on a contoured shape. This is particularly useful on the thicker grades which cannot be bent to tight radii.
 ECCOSORB AN can be supplied with an aluminium foil backing on special order.

Physical Characteristics :

	Nominal Weight (kg/ piece)	Nominal Weight (kg/ m ²)	Nominal Thickness (cm)	Density (g/ cm ³)
ECCOSORB AN-72	0,25	0,67	0,6	0,10
ECCOSORB AN-73	0,50	1,34	1,0	0,10
ECCOSORB AN-74	0,70	1,88	1,9	0,10
ECCOSORB AN-75	0,80	2,15	2,9	0,07
ECCOSORB AN-77	1,50	4,03	5,7	0,07
ECCOSORB AN-79	2,95	7,93	11,4	0,07

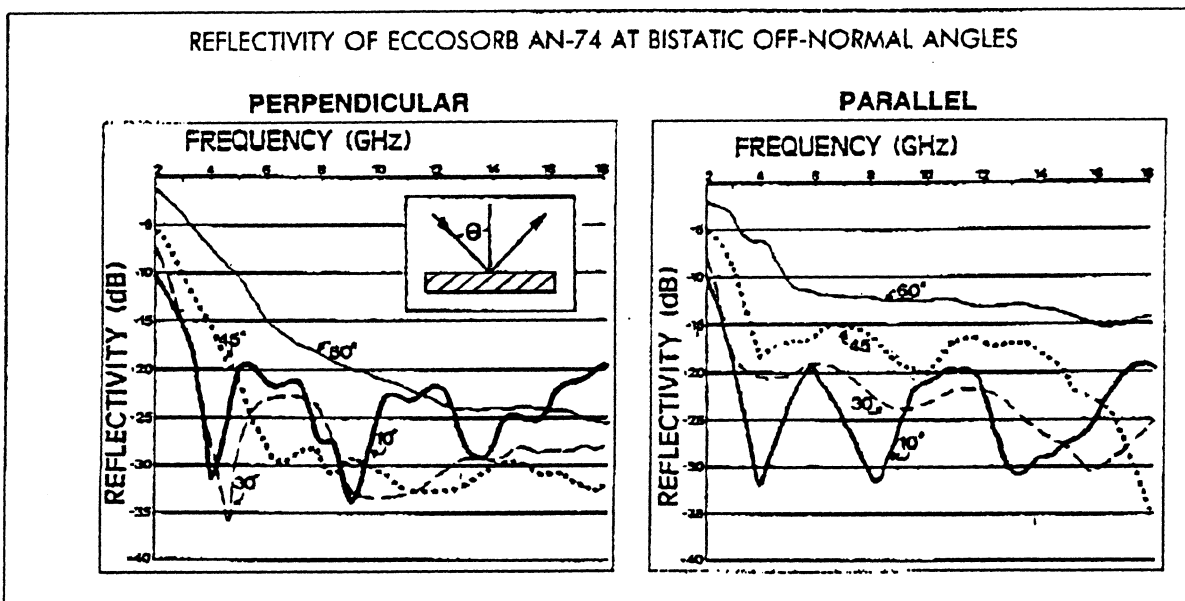
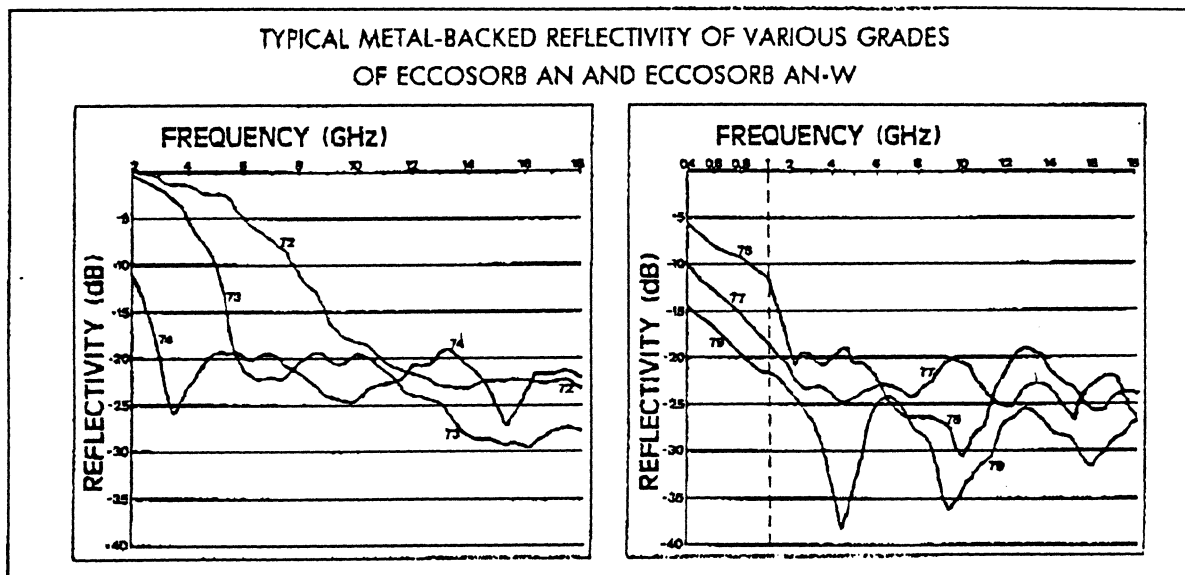
Colour front surface painted white, back surface gold.
 Service temperature 120 °C maximum
 Power handling 0,25 W/cm²
 Bond strength exceeds material strength
 Thermal conductivity 6,8 x 10⁵ cal-cm/sec-cm²-°C
 Fire retardancy fire retardant, ISO 3582

Note : ECCOSORB AN is an open-cell foam and is not designed to be waterproof. It will not operate correctly when wet, but there is no washout, so it will function again after being allowed to dry. For waterproof applications, see separate bulletin on ECCOSORB AN-W (Technical Bulletin 1-015).

Instructions For Use : ECCOSORB AN can be readily cut to shape on a bandsaw, or with scissors or a sharp knife. It is a flexible foam and can be formed easily to compound curves. The absorber is designed to be attached to a metal object to give the best reflectivity reduction, however for isolation of components or antennas by means of insertion loss, it can be used without metal backing. ECCOBOND[®] 87 H (NF) (Technical Bulletin 4-010) is the recommended adhesive, and will bond the absorber securely to clean surfaces of metal, wood, and common plastics composites. It is brushed or sprayed onto both the back surface of the absorber and the substrate surface, allowed to become tacky in 3-5 minutes, then the two surfaces are pushed together with slight pressure to form a contact adhesion. The bonded piece should be allowed to sit overnight for complete evaporation of residual solvent.
 It is important to note, that ECCOSORB AN is a laminated material. It has a front surface (white) and a back surface (gold). Layering multiple pieces of ECCOSORB AN, or slicing off part of the thickness will degrade the overall performance.

Reflectivity : Typical normal incidence reflectivity characteristics for the six ECCOSORB AN grades are shown in the two figures below (for measuring method see Application Note XXX). Reflectivity performance degrades for off-normal bistatic incidence, at different rates for different polarizations.

The figures below show how performance of ECCOSORB AN-74 degrades as the incidence angle increases (0° is normal, 90° is a grazing incidence).



Safety Considerations : It is recommended to consult the Grace product literature, including material safety data sheets, prior to use Grace products. These may be obtained from your local sales office.

PRO-PAC Corporation

Quote No. _____

to: National Radio Astronomy Obsv.
 2015 Ivy Rd
 Charlottesville, VA 22903
 Marian Pospieszalski

Inquiry No.	
Date	9/24/96
Terms	Net 30
FOB	S/P
Delivery	See below

We are pleased to quote as follows:

Item	Part #	Description	Quantity	Price	Amount
1	AN72	ECCOSORB AN72	10 ^{MIN}	210 ⁹¹	each
2		1/4" X 24" X 24"			
3		lead time 8 weeks			
4		or			
5	ARC-ML72	ARC Technology Multilayer	5-6	48 ⁰⁰	each
6		Absorber			
7		size 1/4" X 24" X 24"			
8		lead time 3 weeks			
9					
10					
11					
12					
13					
14					
15					

page one of two



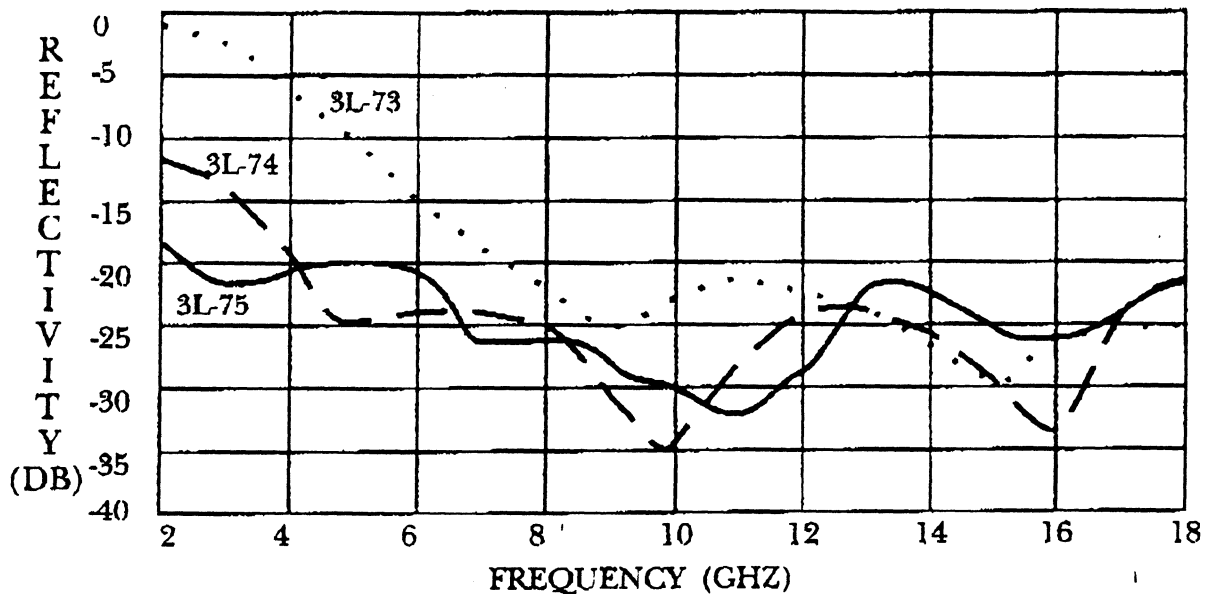
PRO-PAC Corporation
 118 Meister Ave.
 Branchburg, NJ 08876

Tel: (908) 725-5000
 Fax: (908) 725-6696

TECHNICAL DATA SHEET MULTILAYER SERIES

ARC Technologies manufactures a thin, lightweight, broadband, flexible absorber in various thicknesses, which are dependent on the desired frequency range. Individual layers are gradient loaded with different loss tangents and then laminated together to achieve maximum absorption over a broad band. To optimize performance, this absorber should have a metallic backing which can be supplied by ARC, or the absorber can be bonded to a metallic structure by the customer. This absorber can be wrapped and sealed with a neoprene nylon fabric, or sprayed with a flexible polyurethane coating for moisture and weather resistance requirements.

ARC Multilayer Typical Performance



ARC MULTILAYER SERIES SPECIFICATIONS

DESCRIPTION: Multi-Layered broadband absorber consisting of graduated layers of loaded open-cell foam.

SIZE: 24"x24" standard; custom sizes available.

TEMP. RANGE: -70 to +270 F.

ARC PAL 72

ABSORBER	2L-72	3L-73	3L-74	3L-75	3L-77	6L-79
L.O.F. (GHZ)*	12	8	4	2.5	2	.5
THICKNESS	.250"	.375"	.750"	1.125"	2.25"	4.5"

*L.O.F. = Lowest Operational Frequency