Federal Aviation Administration

International Aircraft Materials Fire Test Working Group

Discussion of Filling Compounds

Presented to: IAMFT WG, Atlantic City, NJ

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What is “Filler” ?

fill·er [1] (f l r) *n.*

One that fills, as:

a. Something added to augment weight or size or fill space.

b. A composition, especially a semisolid that hardens on drying, used to fill pores, cracks, or holes in wood, plaster, or other construction surfaces before finishing.

c. Tobacco used to form the body of a cigar.

d. A short item used to fill space in a publication.

e. Something, such as a news item, public-service message, or music, used to fill time in a radio or television presentation.

f. A sheaf of loose papers used to fill a notebook or binder.

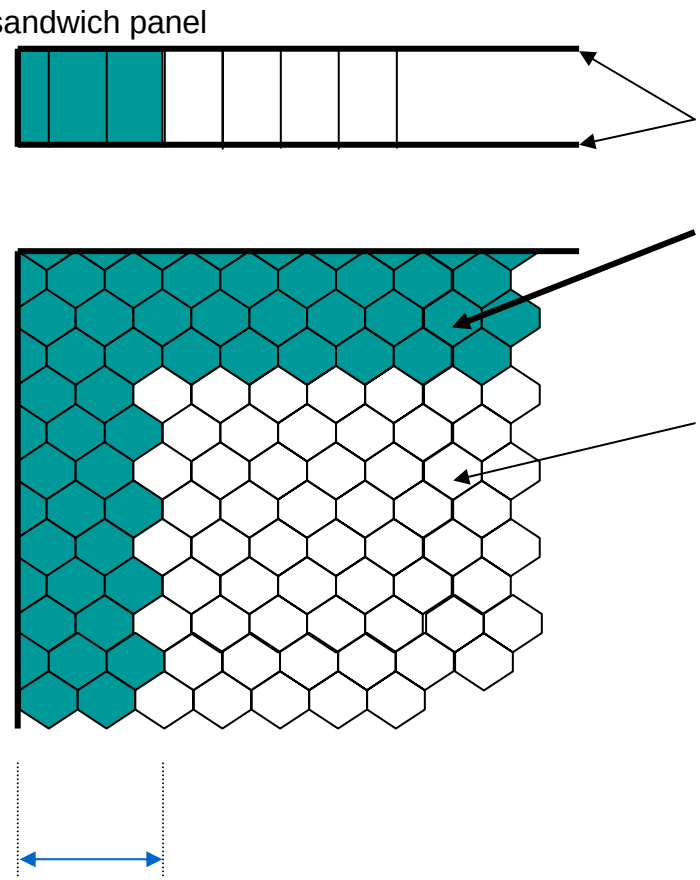
g. *Architecture* An element, such as a plate, used to fill the space between two supporting members.

Where is Filler Used in an Aircraft Cabin?

1. Edge Fillers, Close-outs

2. Surface Fillers

Edge Filling



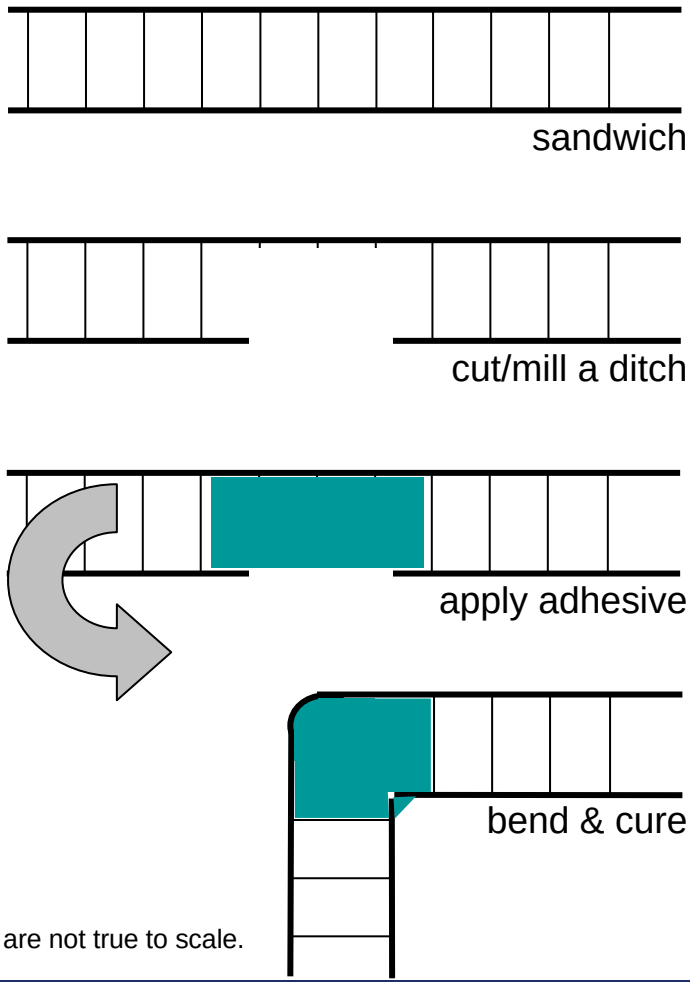
The core filler mechanically protects component edges.

Edges are shaped by cutting or milling.

Typically applied for flat components with simple edge geometries (partitions, cabinet walls, ...).

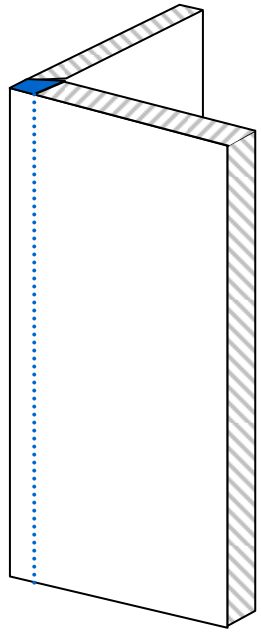
Sketches are not true to scale.

“Ditch and Pot” Component Edge



Sketches are not true to scale.

Typically, the production method creates an angeled component.



Surface Fillers

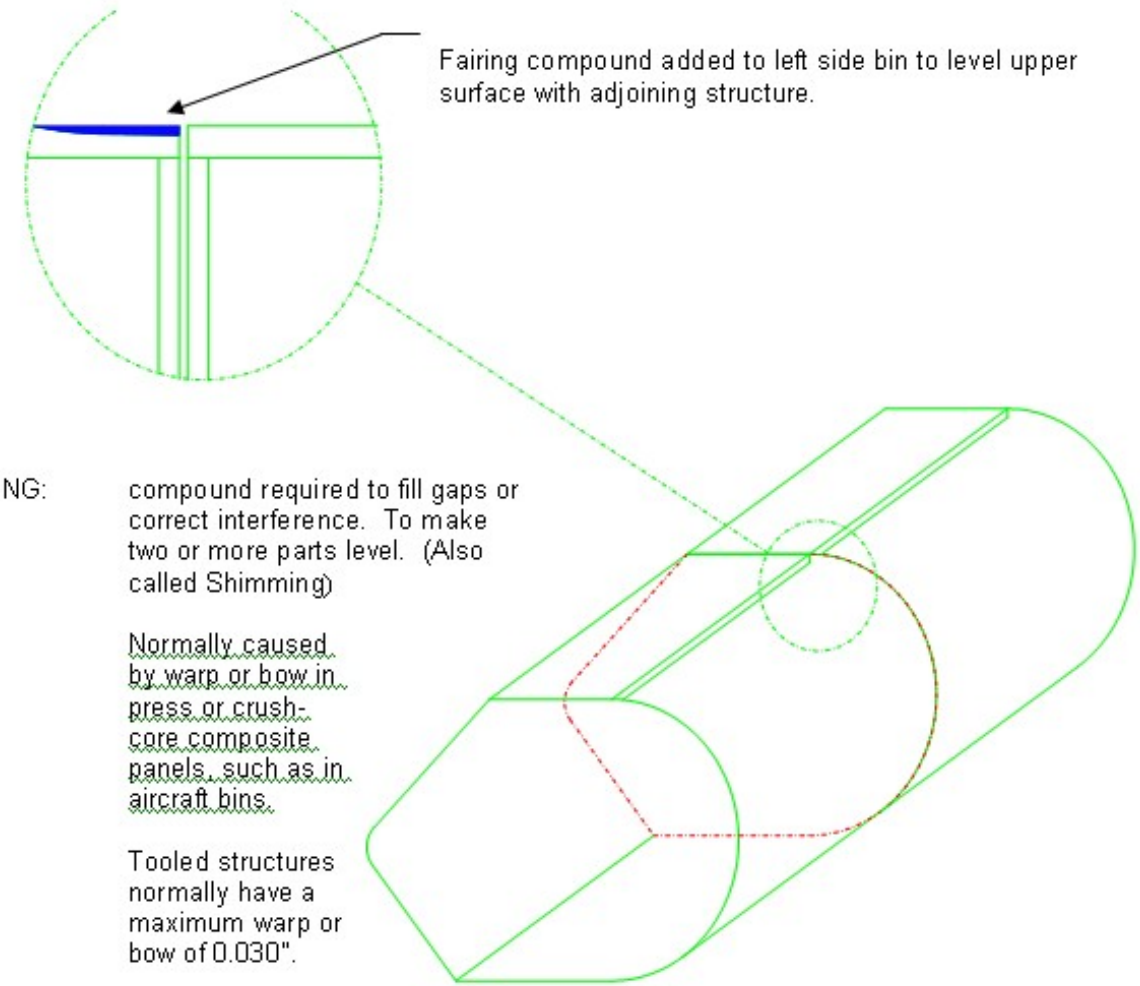
Fairing — The use of a compound to smooth and align a surface for aesthetic and structural requirements.

FILLING: compound required to fill the voids created by the fabric weave.

NOTE: some decorative coverings (tedlars) can be bonded to panels without filling the small voids created by the weave, due to the thickness and texture. Not Filling the voids can create additional peel strength.

RESTORATION: compound required to correct flaws in a defective part. Caused by fabric bridging, or loss of part definition during the molding process. Consult applicable Process Document for Limits for Correction.
Also procedures to eliminate flaws. Flaws must be eliminated by manufacturing adjustments, and these adjustments must be properly documented in the Manufacturing Process Document, Engineering Drawing, and/or NCR Deposition, as applicable.

Surface Fillers



FAIRING: compound required to fill gaps or correct interference. To make two or more parts level. (Also called Shimming)

Normally caused by warp or bow in press or crush-core composite panels, such as in aircraft bins.

Tooled structures normally have a maximum warp or bow of 0.030".

ADTECH Plastic Systems

P-17 HIGH HEAT RESISTANT FILLER

E-mail this product to a colleague

P-17 High heat resistant filler set-fast system has uses in aerospace, aircraft, automotive, tooling, manufacturing and final fabrication where potential exposure to elevated temperatures up to 230°C/446°F have to be tolerated either for short term or continuous periods. P-17 offers the user a smooth workable paste with set-fast cure to expedite those applications for repair or finish. P-17 can be applied with a squeegee, spatula or flat tool. The cured material can be finished by mechanical sanding, grinding, scraping, etc., to a feather edge. This filler has excellent adhesive and bond strength to fiberglass, SMC, BMC, RIM, FRP, epoxy, graphite and Kevlar® composites as well as aluminum, plaster and other substrates. P-17 High Heat Resistant Filler when cured and finished accepts virtually all types of coatings and decorative film without any blush or discoloration.

Features:

•Two component vinyl ester, thixotropic machinable paste
•4-6 Minute Work Life
•White, Gray or Black
Developed for use in tooling, fabrication and repair in the aerospace, aircraft and automotive industries where elevated temperatures (up to 230°C/446°F) may occur. Low moisture absorption also makes this an ideal filler/repair material for the marine industry. Excellent bond strength to fiberglass, SMC, BMC, RIM, FRP composites and other substrates. Accepts all types of coatings without discoloration.

Applications: Typical applications include: Aircraft interior panels, FRP panels-filling cloth imprint, Nose cone porosity, Edge filling on honeycomb, Changes & repairs to vacuum form molds, Drill fixtures, potting bushings, Gel-coat repairs on production molds, SMC mold porosity in molded parts, Many other applications.

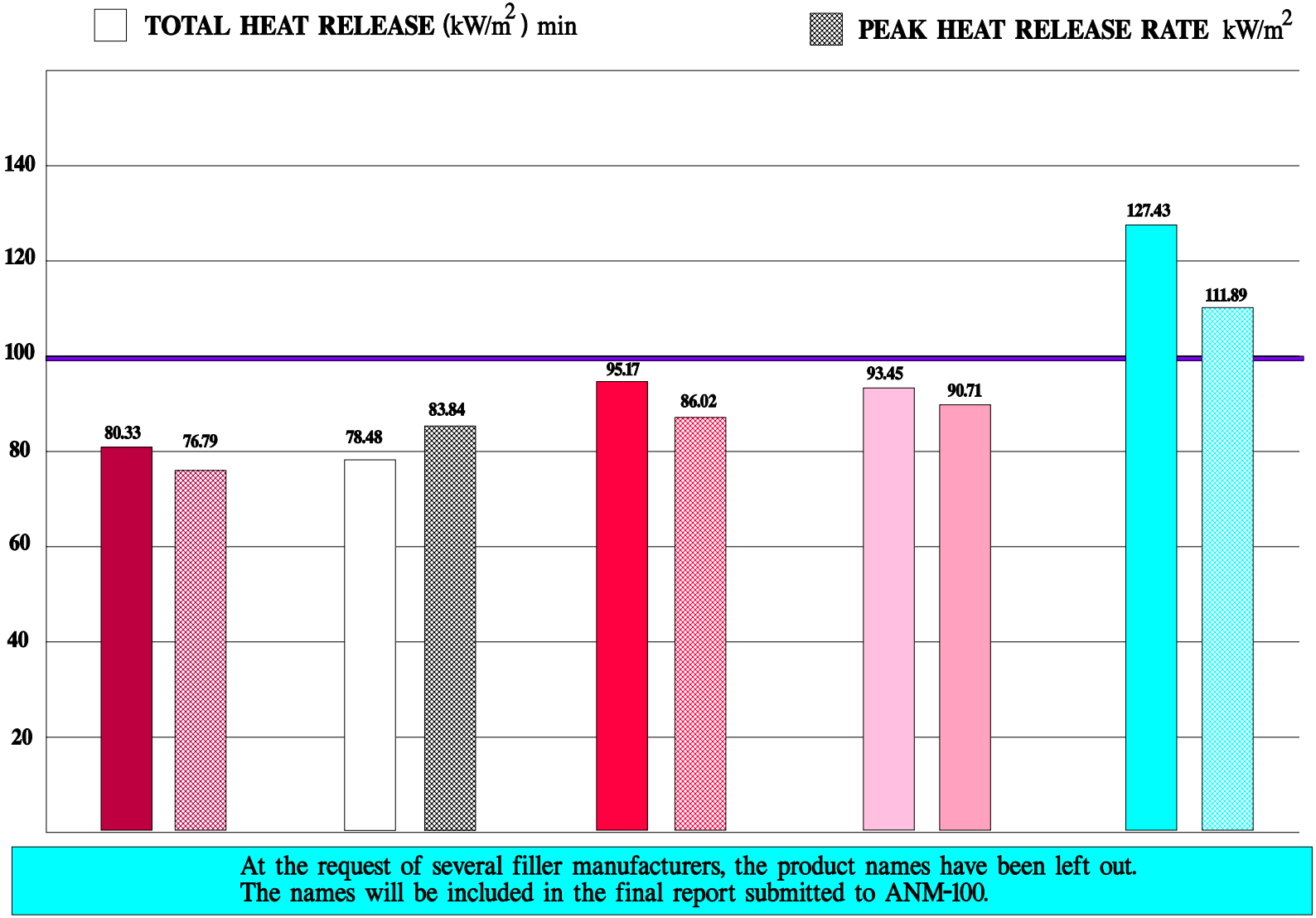
HIGH PERFORMANCE ENGINEERED EPOXIES AND POLYURETHANES

Quadrant Chemical Corp.

Specialty Resins

Features/Applications	Code	Cure Schedule
BMS 5-136,2,1; Aircraft interior panel filler, potting and fairing compound	**PE-6010 & PE-6013 Polyester**	**Room temperature**
Table top, bar top and plaque coating decoupage	**A-2179 / B-2180 Epoxy**	**Room temperature**
Chemical resistant adhesive for pipe & fittings	**A-2400 / B-2441 Epoxy**	**Room Temperature or 2 hrs at 65 °**
High performance filiment wound pipe Non-MDA 155 ° Tg	**A-9856 / B-9856 Epoxy**	**2 hrs at 90 ° plus 1 hr at 165 °**

.125" SPATULA FILLER TESTS



At the request of several filler manufacturers, the product names have been left out.
The names will be included in the final report submitted to ANM-100.

figure 16

.250" SPATULA FILLER TESTS

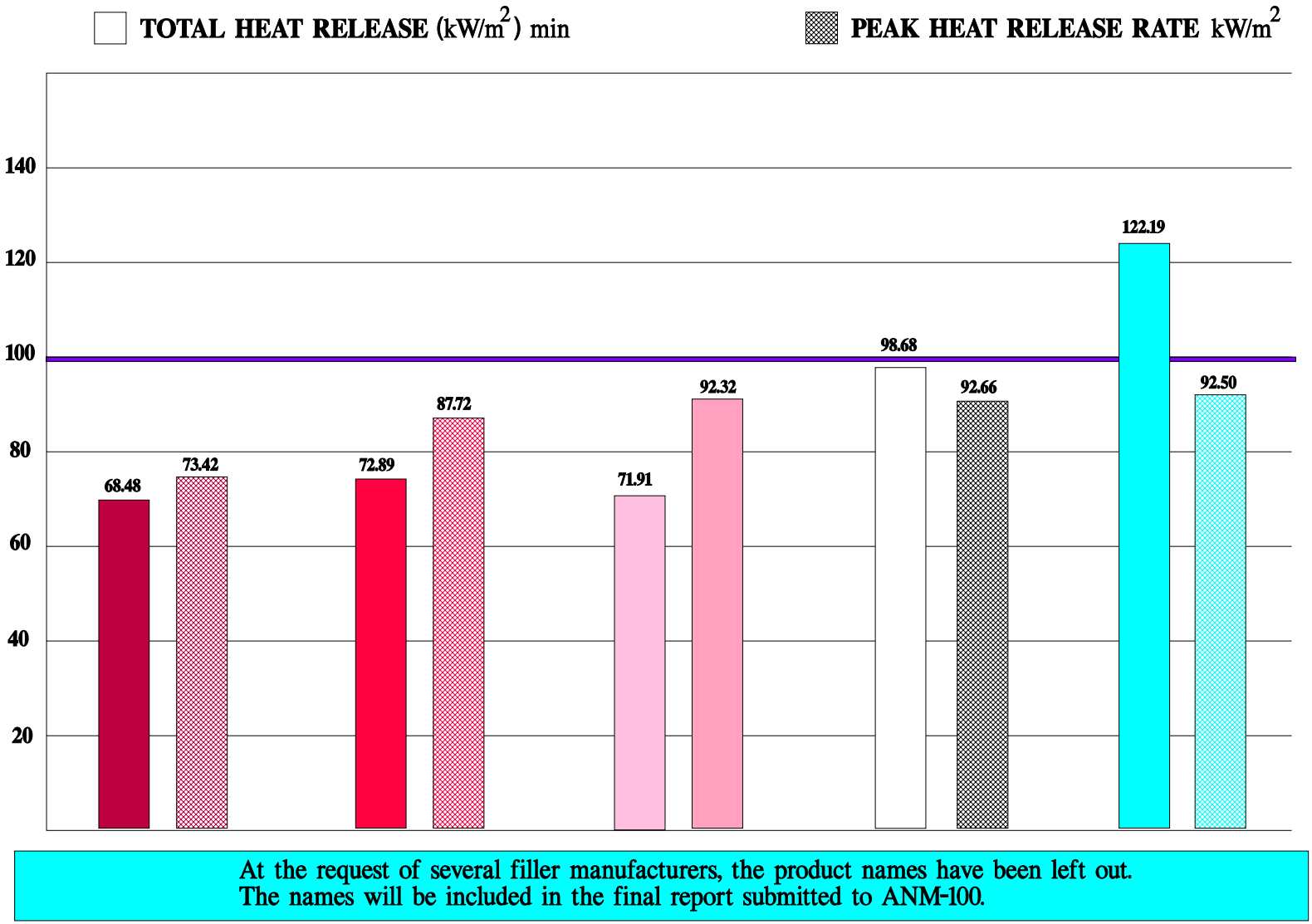


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figure 17

Mold Used to Make Filler Sample