

TECHNICAL REPORT

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Specialist Aviation Ltd

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For the attention of Mr Gary Townley

Our Ref: TMCMF51277

Your Ref:

Date: 13th March 2014

Delivery Date: 7th March 2014

Test Dates: 13th March 2014

SAMPLE FOR TEST

Plastic bonded joints.

Reference: Kydex 1 mm sheet, bonded with SATTO 2021 GRN 10000716 grey, normal atmosphere pressure, no heat applied, 30 minutes cure.

Joint type: butt & lap with 20th doubler – gap between sheets 3mm, doubler 13mm bonded non decorative side

TEST REQUIREMENTS

Tensile shear strength.

This Report relates to the sample(s) submitted for test and no others. Additions, deletions or alterations are not permitted. Tests reports are given to the client in confidence, and may only be reproduced in whole or in part with written permission from FIRA. Note that the words "**tested by FIRA**" may be used in subsequent publicity for the product; "approved" must **not** be used. Tests are carried out on the understanding that neither the Association nor its officers can accept any legal responsibility for the information or advice given or opinions expressed whether in response to specific enquiries or otherwise.

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The above descriptions are supplied by the client and have not been verified by FIRA who can take no responsibility for the accuracy of the description.

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INTRODUCTION

Specialist Aviation Ltd has commissioned FIRA International to carry out tests on plastic bonded samples in order to determine the shear strength of fabricated 'joints'.

Note: The testing commissioned was ad-hoc and as agreed with the customer. Test results do not imply fitness for a particular application and are provided on an advisory basis only.

TEST SAMPLES AND PREPARATION

Plastic bonded joints.

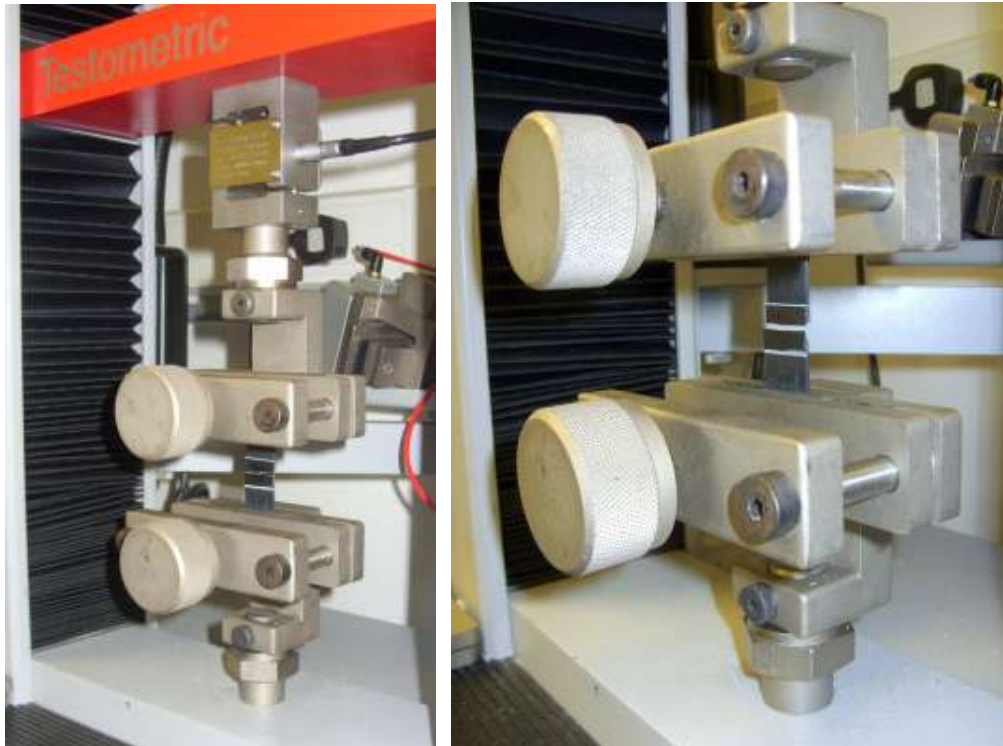
Reference: Kydex 1 mm sheet, bonded with SATTO 2021 GRN 10000716 grey, normal atmosphere pressure, no heat applied, 30 minutes cure.

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Lap and butt shear test specimens of overall nominal size 76mm length x 20mm width were supplied fully prepared and with an overlap bond area of approximately 20 mm width x 13 mm (260mm²) Test specimens varied slightly in size and exhibited slight squeeze out.

The prepared test specimens were secured between the rubber faced jaws of a grip vice attached to a Testometric tensile test machine. An increasing force was applied to the test specimens, at a machine test speed rate of 10 mm / minute, until failure occurred. See photograph 1&2. Test samples were tested at a room temperature of 20°C.

The peak failing force in Newtons was recorded and used to calculate the tensile shear strength in N/mm². (Results: Table 1).



PHOTOGRAPHS 1 & 2: TENSILE TEST ARRANGEMENT

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RESULTS

TABLE 1

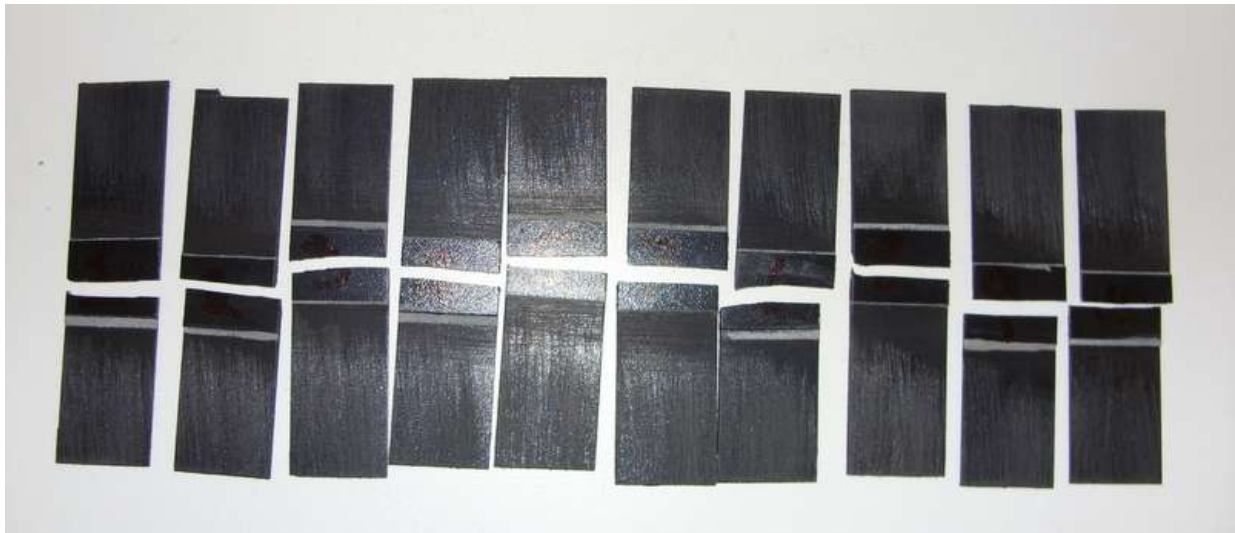
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Sample	Failure Force N	Tensile strength N/mm ² Based on 20 x 13 mm (260 mm ²) overlap	Failure mode
1	714	2.75	Within weld line- upper
2	639	2.46	Within weld line - upper
3	625	2.40	Within weld line - centre
4	483	1.86	Within weld line- upper
5	613	2.36	Within weld line- upper
6	493	1.90	Within weld line-centre
7	688	2.65	Within weld line-upper
8	484	1.86	Within weld line-upper
9	610	2.35	Within weld line-upper
10	473	1.82	Within weld line-centre
Mean (N/mm ²)	582	2.75	

PHOTOGRAPH 3:- TEST PIECES – FAILURE MODE



REPORT BY: V TAYLOR

APPROVED BY: V TAYLOR (SECTION HEAD- MATERIALS TECHNOLOGY)

(END OF REPORT)