

TECHNICAL REPORT



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For the attention of Mr Gary Townley

Our Ref: TMCMF51276

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, 30minute cure.

Joint type: Lap joint

TEST REQUIREMENTS

Tensile shear strength.

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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

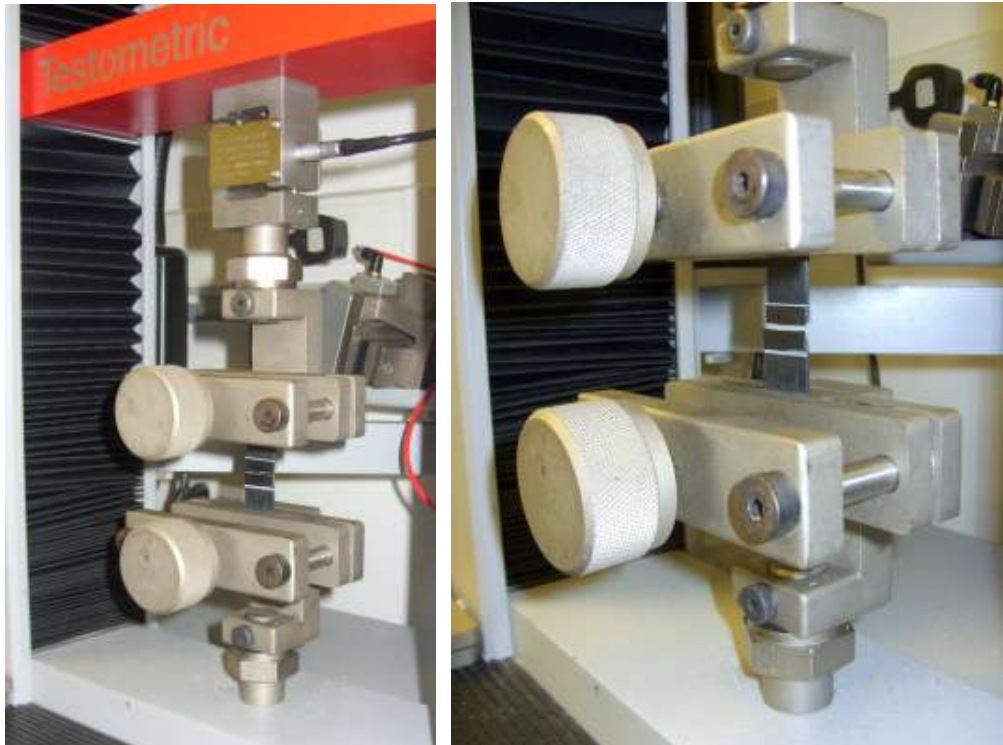
Plastic bonded joints.

Reference: Kydex 1 mm sheet, bonded with SATTO 2021 GRN 10000716 grey, normal atmosphere pressure, no heat applied, 30minute cure. Joint type: Lap joint

Lap shear test specimens of overall nominal size 105mm length x 20mm width were supplied fully prepared and with an overlap bond area of approximately 20 mm width x 9 mm (180mm²) Test specimens varied slightly in size and exhibited some 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

SAMPLE: Plastic bonded joints.

Reference: Kydex 1 mm sheet, bonded with SATTO 2021 GRN 10000716 grey, normal atmosphere pressure, no heat applied, 30minute cure. Joint type: Lap joint

Sample	Failure Force N	Tensile strength N/mm ² Based on 20 x 9mm (180mm ²) overlap	Failure mode
1	1455	8.1	In plastic – at arc line with adhesive squeeze out
2	1552	8.6	In plastic – at arc line with adhesive squeeze out
3	1520	8.4	In plastic – at arc line with adhesive squeeze out
4	1265	7.0	In plastic – at arc line with adhesive squeeze out
5	1247	6.9	In plastic – at arc line with adhesive squeeze out
6	1397	7.8	In plastic – at arc line with adhesive squeeze out
7	1495	8.3	In plastic – at arc line with adhesive squeeze out
8	1215	6.8	In plastic – at arc line with adhesive squeeze out
9	1425	7.9	In plastic – at arc line with adhesive squeeze out
10	1279	7.1	In plastic – at arc line with adhesive squeeze out
Mean (N/mm ²)	1385	7.7	

PHOTOGRAPH 3:- TEST PIECES – FAILURE MODE



REPORT BY: V TAYLOR

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

(END OF REPORT)

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