

Supplementary

# New EoL Routes of Al-Li Aircraft Integral LBW and FSW Welded Panels including New Cr-Free Coatings

## Supplementary Materials

Standard deviation values in wt. % of each measurement of chemical composition are shown in Table S1, Table S1 and Table S3 for data shown in **Error! Reference source not found.**, **Error! Reference source not found.** and **Error! Reference source not found.**, respectively.  $\pm$  symbol refers to the expanded uncertainties calculated for a 95 % confidence interval ( $k=2$ ).

**Table S1.** Standard deviation values in wt. % of each measurement provided in Table 3.  $\pm$  symbol refers to the expanded uncertainties calculated for a 95 % confidence interval ( $k=2$ ).

Reference	Chemical composition (wt. %)									
	Li *	Cu	Mg	Ag *	Zr *	Mn	Zn	Fe	Si	Ti *
AA2060 (skin)	-	$\pm 0.1$	$\pm 0.03$	-	-	$\pm 0.02$	$\pm 0.02$	-	-	$\pm 0.004$
AA2198 (skin and stringer)	-	$\pm 0.09$	$\pm 0.01$	-	-	-	-	$\pm 0.005$	-	$\pm 0.004$
AA2196 (stringer)	-	$\pm 0.08$	$\pm 0.02$	-	-	$\pm 0.02$	$\pm 0.008$	$\pm 0.005$	-	$\pm 0.005$
AA2099 (stringer)	-	$\pm 0.07$	$\pm 0.01$	-	-	$\pm 0.02$	$\pm 0.03$	$\pm 0.004$	-	$\pm 0.004$
ER4047 (filler wire)	-	-	-	-	-	-	-	$\pm 0.01$	$\pm 0.4$	$\pm 0.003$
ER2319 (filler wire)	-	$\pm 0.15$	-	-	-	-	-	$\pm 0.006$	-	$\pm 0.01$
ER2395 (IAWAS) (filler wire)	-	$\pm 0.1$	$\pm 0.02$	-	-	-	-	$\pm 0.005$	-	$\pm 0.004$
J300 (IAWAS) (filler wire)	-	$\pm 0.16$	-	-	-	$\pm 0.02$	-	$\pm 0.007$	-	-

**Table S2.** Standard deviation values in wt. % of each measurement provided in Table 7.  $\pm$  symbol refers to the expanded uncertainties calculated for a 95 % confidence interval ( $k=2$ ).

Reference	Metal Yield (%)	Chemical composition (wt. %)												
		Li *	Cu	Mg	Ag *	Zr *	Mn	Zn	Fe	Si	Ti*	C	S	Al
Uncoated (R1)	93.5	-	$\pm 0.09$	-	-	-	-	-	$\pm 0.005$	$\pm 0.013$	$\pm 0.004$	-	-	-
TFSAA coat (R1)	86.4	-	$\pm 0.09$	-	-	-	-	-	$\pm 0.004$	$\pm 0.012$	$\pm 0.005$	-	-	-
TFSAA decoat (R1)	91.1	-	$\pm 0.09$	-	-	-	-	-	$\pm 0.005$	$\pm 0.012$	$\pm 0.005$	-	-	-
Uncoated (R11)	94.1	-	$\pm 0.08$	$\pm 0.02$	-	-	$\pm 0.02$	$\pm 0.02$	$\pm 0.004$	-	-	-	-	-
Sol-gel coat (R11)	90.0	-	$\pm 0.08$	$\pm 0.02$	-	-	$\pm 0.02$	$\pm 0.03$	-	-	$\pm 0.004$	-	-	-
Sol-gel decoat (R11)	91.7	-	$\pm 0.08$	$\pm 0.02$	-	-	$\pm 0.02$	$\pm 0.02$	$\pm 0.004$	$\pm 0.012$	-	-	-	-

**Table S3.** Standard deviation values in wt. % of each measurement provided in Table 8 ± symbol refers to the expanded uncertainties calculated for a 95 % confidence interval (k=2).

Reference	Metal Yield (%)	Chemical composition (wt. %)										
		Li *1	Cu	Mg	Ag *1	Zr *1	Mn	Zn	Fe	Si	Ti *1	Al
R1 3C – skin (AA2198) *2	92.3	-	±0.08	±0.01	-	-	-	-	±0.005	-	±0.004	-
R1 3C – stringer (AA2198) *2	93.4	-	±0.08	±0.01	-	-	-	-	±0.005	-	±0.005	-
R1 3C: weld fr. *2	93.6	-	±0.08	±0.01	-	-	-	-	±0.005	-	±0.004	-
R1 2C: stringer + weld	94.4	-	±0.08	±0.01	-	-	-	-	±0.005	±0.02	±0.004	-
R1 1C: skin + weld	95.3	-	±0.08	±0.01	-	-	-	-	±0.005	±0.01	±0.005	-
R1 0C	93.3	-	±0.08	±0.01	-	-	-	-	±0.005	±0.01	±0.005	-
R2 0C	93.0	-	±0.08	±0.01	-	-	-	-	±0.006	-	±0.005	-
R3 0C	94.9	-	±0.08	±0.01	-	-	-	-	±0.005	-	±0.004	-
R5 0C	93.1	-	±0.08	±0.01	-	-	-	-	±0.005	-	±0.004	-
R6 0C	93.7	-	±0.08	±0.01	-	-	±0.01	-	±0.005	-	±0.005	-
R7 0C	95.5	-	±0.08	±0.02	-	-	-	-	±0.004	-	±0.005	-
R8 0C	93.9	-	±0.09	±0.02	-	-	±0.02	±0.02	±0.004	-	±0.005	-
R9 0C	92.9	-	±0.09	±0.01	-	-	±0.01	±0.01	±0.004	-	±0.004	-
R10 0C	92.6	-	±0.07	±0.01	-	-	±0.01	±0.01	±0.006	-	±0.004	-
R11 0C	92.6	-	±0.08	±0.02	-	-	±0.02	±0.02	±0.005	-	±0.005	-