
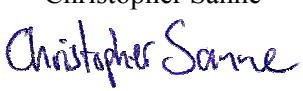


Oppdragsgiver Client Cookware Norge Olsvikmarka 26 5183 Olsvik		Utførende enhet/lab. Department/laboratory responsible The National Institute of Technology Materials Technology Pb. 2608 St. Hanshaugen NO - 0131 OSLO	
Rapportnr. Report no. <p style="text-align: center;">3420-08-0026</p>			
Tittel Title <p style="text-align: center;">Examination of cooking vessel</p>			
Dato Date <p style="text-align: center;">17.01.08</p>	Utarbeidet av Prepared by Jens Fredrik Blegstad 	Godkjent av Approved by Christopher Sanne 	Innl leveringsdato for prøve Date of receipt of test object <p style="text-align: center;">14.01.08</p>
Revisjonsnr. Revision no. <p style="text-align: center;">A</p>	Konfig.kont. Config.contr. <input checked="" type="checkbox"/> Ja Yes <input type="checkbox"/> Nei No	Antall sider No. of pages <p style="text-align: center;">4</p>	Ant. Vedlegg No. of append.
Kopi nr. Copy no.	Akkred. Test Accredited test <input type="checkbox"/> Ja Yes <input checked="" type="checkbox"/> Nei No	Kundens ref. Client's ref. <p style="text-align: center;">Øyvind Skogrand</p>	Bestillingsnr. Order no.
Fordeling Distribution			

Prøvingsresultater gjelder utelukkende de prøvede objekter. Utdrag av rapporten må ikke gjengis uten skriftlig godkjenning fra Teknologisk institutt as.

Test results relate only to the items tested. The report shall not be reproduced except in full, without the written approval of the laboratory.

1. Description of test object.

The National Institute of Technology, Norway has received one cooking vessel for examination of material composition. The vessel is marked "Salladmaster", 316Ti Titanium Stainless Steel, 3 Quart (2,8 liter) Made in USA.

Supplied with the vessel were copies of letters from the manufacturer describing the materials and manufacturing process.

This report 3420-08-0026-A is an English version of the original report.

2. Test method

Chemical analysis according to procedure ML-SM-PP-01, optical spectroscopy. Sample preparation acc. to NS-EN ISO 14284.

A cross section of the material is prepared and etched to show the material structure.

3. Time and place of testing

Materials laboratory, Oslo 17.01.2008.

4. Results

A cross section of the vessel bottom is shown in picture 1. The cross section consists of a total of 5 layers with thicknesses from 0,08 to 1,3 mm. The inner surface consists of a 0,35 mm thick layer with a composition corresponding to the specifications for AISI 316Ti austenitic stainless steel. Results from the analysis are shown in table 1.

The core contains a three layer aluminium sandwich consisting of a 1,3 mm centre layer covered with 0,08 – 0,1 mm layer of different composition on each side. The composition of the core material corresponds to specifications for aluminium alloy AA 3004. Composition is given in table 2.

The outer surface consists of a 0,4 mm thick steel layer with a composition corresponding to specifications for AISI 436 ferritic stainless steel. Composition is given in table 3.

National Institute of Technology, Norway

Wessel inside

-	C	Si	Mn	P	S	Cr	Ni
	%	%	%	%	%	%	%
X	0.016	0.41	1.77	0.029	0.001	16.65	10.74
-	Mo	Al	Cu	Co	Ti	Nb	V
	%	%	%	%	%	%	%
X	2.16	0.032	0.38	0.29	0.25	<0,001	0.059
-	W	Pb	B	Sn	As	N	Fe
	%	%	%	%	%	%	%
X	0,10	<0,001	<0,0001	0,015	0,010	0,051	66,9

Table 1. Spectrometer analysis of inner surface

Core material

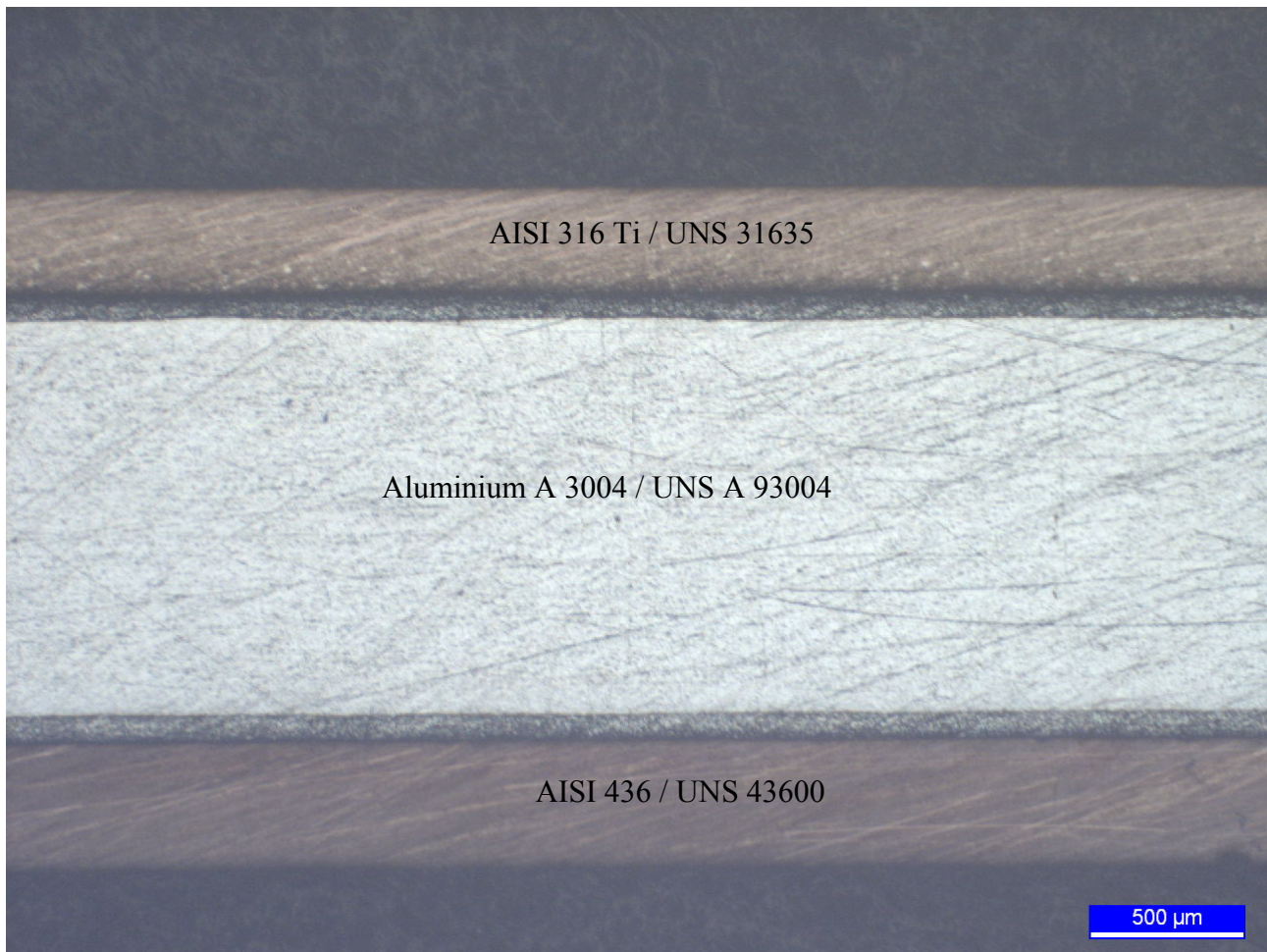
-	Si	Fe	Cu	Mn	Mg	Cr	Ni
	%	%	%	%	%	%	%
X	0.22	0.28	0.14	1.11	1.09	0.021	0.007
-	Zn	Ti	Co	P	Pb	Sn	Al
	%	%	%	%	%	%	%
X	0.046	0.015	<0.001	<0.001	0.002	<0,001	97.003

Table 2. Spectrometer analysis of core material.

Wessel outside

-	C	Si	Mn	P	S	Cr	Ni
	%	%	%	%	%	%	%
X	0.015	0.65	0.29	0.036	0.001	17.25	0.22
-	Mo	Al	Cu	Co	Ti	Nb	V
	%	%	%	%	%	%	%
X	1.31	0.005	0.17	0.021	0.004	0.63	0.027
-	W	Pb	B	Sn	As	N	Fe
	%	%	%	%	%	%	%
X	<0.001	<0,001	<0,0001	0,011	0,003	0,031	79,2

Table 3. Spectrometer analysis of outer surface



Picture 1. Cross section of vessel bottom. Picture enlarged approximately 40 X. Matching qualities for the analysed materials are set out.