

IGNIS ADVISORY NOTE

NON-COMBUSTIBLE TESTING

6000 SERIES EXTRUDED ALUMINIUM

IGNL-4089-01-03R Issue 01 Revision 01

1 Introduction

Ignis Labs undertook testing on two typical extrusion alloys (6005A and 6463). The 6005A and 6463 alloys were chosen to represent the entire range of extrudable alloys known as '6000' series. The 6000 series alloy range covers a number of specific types used for structural applications such as 6005A, 6082, 6106, 6351, 6061, as well as more generic types used for industrial, automotive architectural, trim or decorative applications such as 6463, 6060, 6063, and 6101.

The 6463 alloy was tested on 30 September 2020 and the subsequent report issued on 24 February 2021 known as IGNL-4089-01-01R I01R00.

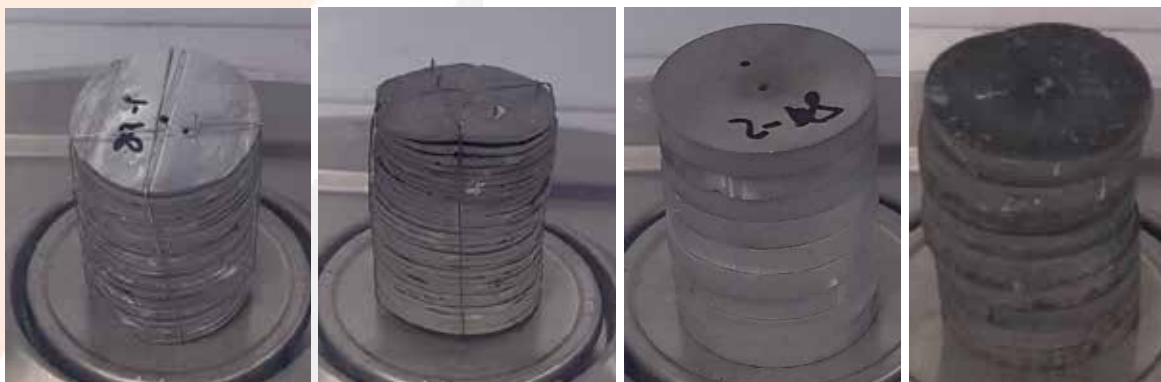
The 6005 alloy was tested on 01 October 2020 and the subsequent report issued on 25 November 2020 known as IGNL-4089-01-02R I01R00.

The sponsor described the tested specimen as:

Extruded aluminium alloy with a nominal density of 2.7g/cm³. The colour of the specimen is mill finish aluminium and the end use being extruded products. Images of the specimens tested before and after the test are detailed below.

FIGURE 1:

SPECIMEN IMAGE BEFORE AND AFTER TEST (6463 AND 6005 ALLOY)



2 Methodology

Within each test, five (5) specimens were tested in accordance with Australian Standard 1530 Methods for fire tests on building materials, components and structures, Part 1- 1994: Combustibility Test for Materials. The test apparatus is constructed in accordance with the requirements of ISO 1182:2010, which has been verified to be equivalent to the apparatus requirements of AS 1530.1:1994, with the exception that a suitable alternative insulating material was used to fill the annular space between the furnace tubes, as specified in Clause 4.2 of ISO 1182:2010.

The testing of the two specimens presented a consistent result in reaction. Both specimens presented temperatures less than 50°C and no flaming which satisfied the criteria for non-combustibility.

Test Results:

	6005A	6463
Mean furnace thermocouple temperature rise ΔT_f :	5.01 °C	7.73 °C
Mean specimen centre thermocouple temperature rise ΔT_c :	0.29 °C	0.95 °C
Mean specimen surface thermocouple temperature rise ΔT_s :	1.03 °C	1.74 °C
Mean duration of sustained flaming:	0 seconds	0 seconds
Mean mass loss:	0.0 %	0.03 %

3 Summary

In summary, it is considered that the 6000 series alloy used for various extrusion purposes satisfies the requirements of non-combustibility. The size and dimensions of the specimens detailed above are constructed to satisfy the requirements of the testing. It is considered that various extrusion forms of the 6000 series alloy will maintain a consistent result of non-combustibility should it be tested in accordance with AS 1530.1:1994 to the specimen dimensional requirements. Each of the above documented tests were undertaken by Ignis Labs, a NATA Accredited Facility with AS 1530.1:1994 being within the scope of accreditation and was not deemed to be combustible.



Benjamin Hughes-Brown FIEAust CPEng NER APEC Engineer IntPE(Aus)

Chief Executive Officer

Chartered Professional Engineer

CPEng, NER (Fire Safety / Mech) 2590091, RPEQ 11498, BPB-C10-1875, EF-39394

MFireSafety (UWS), BEng (UTS), GradDipBushFire (UWS), DipEngPrac (UTS), DipEng (CIT)