## **Aluminum Honeycomb**

### Aerospace Grade



## **Toray Advanced Composites**

#### PRODUCT DATA SHEET

#### **DESCRIPTION**

Toray's aluminum aerospace (AAA) grade honeycomb core is available in corrosion-resistant 5052 and 5056 alloys.

Designed predominately for use in sandwich structures to produce highly engineered structural components. In particular, the material offers the designer high strength-to-weight properties at relatively low cost, aluminum honeycomb is particularly suitable as a shear carrying core in adhesively bonded sandwich panel assemblies.

#### **FEATURES**

- ► High strength-to-weight ratio
- **▶** Corrosion resistant
- ► Easily machined and formed
- ▶ Low cost
- ▶ Perforated foil available
- ► Cut to customer thickness specification

#### TYPICAL APPLICATIONS

- ► Commercial aircraft flooring
- ► Space and satellite components
- ► Aircraft leading and trailing edges
- ► Helicopter rotor blades
- ► Fan casings

A wide variety of other applications have been found to exploit the unique properties of aluminum honeycomb such as:

- ► Automotive chassis construction
- ► Marine bulkhead joiner panels
- ► Energy absorption—crash barriers, impact protection
- Air or fluid flow control—wind tunnels, refrigeration display counters
- ► Acoustical absorbers
- ► RF shielding

#### **PRODUCT RANGE**

#### Standard products:

The following products are usually available as ex-stock items. Additional grades can be sourced upon request, subject to minimum order quantities and extended lead times.

- ► AAA-4.5-1/8-10N-5052/**5056**
- ► AAA-6.1-1/8-15N-**5056**\*
- ► AAA-8.1-1/8-20N-5052/**5056**\*

For our range of commercial grade aluminum honeycomb (AAC), 3003 grade foil, please refer to Toray's aluminum honeycomb—commercial grade product data sheet.

#### **PRODUCT DESIGNATION**

e.g.	AAA (a)	4.5 (b)	1/8 (c)	10 (d)	N (e)	5052 (f)		
a. AAA		Toray aluminum aerospace honeycomb						
b. 4.5 Density (lb/ft³)								
c. 1/8	c. 1/8 Cell size in fractions of an inch							
d. 10	1. 10 Nominal foil thickness in ten thousands of an inch e.g., 0.001 in.							
e. N	e. N Nonperforated foil							
f. 5052		Grade of aluminum alloy						

#### STANDARD DIMENSIONS AND TOLERANCES

Nominal sheet length (W) = 2500 mm min. except \* 2440 mm

Nominal sheet width (L) = 1250 mm min. except \* 1220 mm

Sheet thickness as requested above 2 mm  $\pm$  0.125 mm Note: High-density materials, e.g., 8.0lb/ft $^{\rm s}$  or higher, may not be available at thicknesses exceeding 20 mm. Core is expanded at customer's own risk.

Density as nominal ± 10%

Cell size as nominal ± 10%

Other sheet sizes may be available upon request. Over expanded sheets are also available.



Contact us for more information:

# **Aluminum Honeycomb**

**Commercial Grade** 



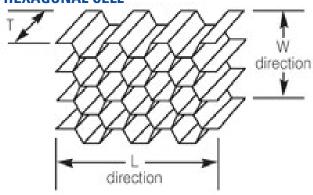
PRODUCT DATA SHEET

#### **MECHANICAL PROPERTIES**

Property	Compressive				Crush	Plate Shear						
	Bare Strength (psi)		Stabilized			"L Direction"			"W Direction"			
			Strength (psi)		Modulus (ksi)	Strength (psi)	Strength (psi)		Modulus (ksi)	3		Modulus (ksi)
	Typical	Min.	Typical	Min.	Typical	Typical	Typical	Min.	Typical	Typical	Min.	Typical
AAA-3.1-1/8-07N-5052	270	200	300	215	75	130	210	155	45	130	90	72
AAA-4.5-1/8-10N-5052	520	375	570	405	150	260	340	255	70	220	165	31
AAA-8.1-1/8-20N-5052	1400	1000	1560	1100	350	750	725	543	135	455	341	54
AAA-4.5-1/8-10N- <b>5056</b>	630	475	690	500	185	320	440	350	70	255	205	28
AAA-6.1-1/8-15N- <b>5056</b>	1120	760	1200	825	295	535	690	525	102	400	305	38
AAA-8.1-1/8-20N- <b>5056</b> **	1520	1200	1900	1300	435	810	900	740	143	520	440	51

<sup>\*\*</sup>Higher performance values may be available on request

#### **HEXAGONAL CELL**



T = Thickness or cell depth L = Ribbon direction W = Direction perpendicular to the ribbon direction

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These values are nominal and not absolute

Data collated from various core options.