

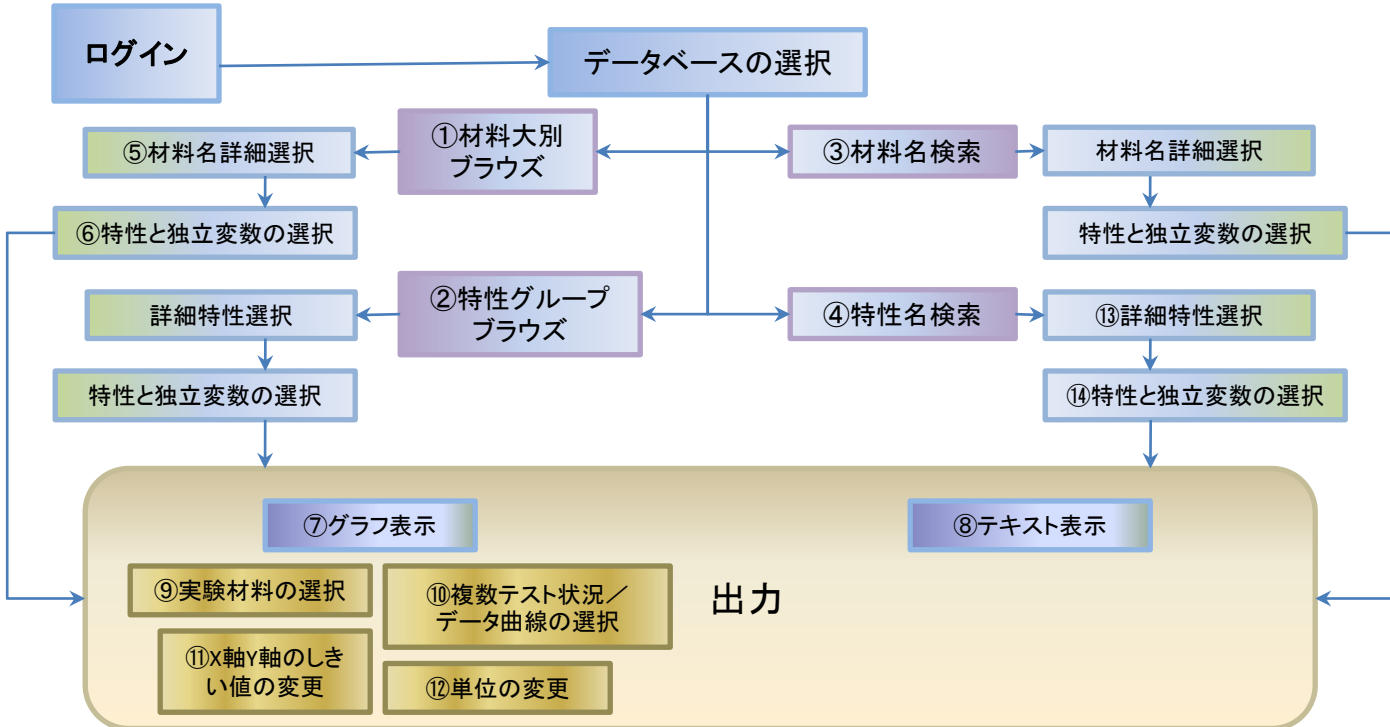
**Aerospace Structural Metals Database (ASMD)**

宇宙構造金属データベース

ログイン先: <https://cindasdata.com/Applications/ASMD/App> (IP認証)

ブラウザ要件: Internet Explorer 6.0 以上 / Mozilla Firefox 1.5 以上  
SafariとOperaはサポートしておりませんが、問題なく動作します。

その他の設定: JavascriptとCookiesは、cindasdata.comのドメインから利用可能な設定をお願いします。



**デフォルトブラウズ及び検索画面**

材料名 工業用材料及び代替材料→

Material Name	Commercial and Alternated Designations
Carbon Steel T-1, Fe-0.15C-0.8Mn-0.85Ni-0.53Cr-0.50Mo+	T-1, T-1 Type A, T-1 Type B, USS T-1, USS T-1 Type A, USS T-1 Type
High Strength Steel 4130, Fe-0.30C-0.95Cr-0.20Mo	4130, AISI 4130, SAE 4130, 4130H, UNS G41300, UNS H41300
High Strength Steel 4140, Fe-0.4C-1Cr-0.2Mo	4140, AISI 4140, SAE 4140, 4140H, UNS G41400, UNS J14046
High Strength Steel 4330V, Fe-0.3C-1.8Ni-0.8Cr+	4330V, 4330, 4330 Mod, 4330V Mod, 4330V (Mod+Si), UNS J23260, U
High Strength Steel 4335V Mod, Fe-0.35C-1.8Ni+	4335 V Modified, 4335 Modified, UNS Number K33517
High Strength Steel 4340 (4337), Fe-0.4C-1.8Ni+	4340, AISI 4340, SAE 4340, E 4340, 4340 H, UNS G43400
High Strength Steel 52100, Fe-1C-1.45Cr	52100, E 52100, Teton (Allegheny-Ludlum)
High Strength Steel 8630, Fe-0.3C-0.55Ni-0.5Cr-0.25Mo	8630, AISI 8630, SAE 8630, 8630H, UNS J13042, UNS J13050, UNS G

ASMD PDF PDF表示→  
基本的には、Appendixとして  
添付される内容が主となります。



**User Options**  
[Applications Menu](#)  
[Logout](#)

CINDAS > [Applications](#) > [ASMD \(version 2.1, data updated 2009.5\)](#) >

**ASMD (version 2.1, data updated 2009.5)** [Material Cross Index](#) | [PDF](#)

**Select Material Group:** Aluminum Alloys, Wrought, Heat Treatable  
 (20 material groups)

**Select Material Name:** Aluminum Alloy Al-7049, Al-7.6Zn-2.5Mg-1.5Cu-0.15Cr  
 (26 materials) [View PDF for this material](#)

**Select Property and Independent Variable:** Elongation (percent); Exposure Temperature (F)  
 (67 property/independent variable)

**⑤材料名詳細選択**      **⑥特性と独立変数の選択**

**材料詳細に関するPDF情報**

March 1977      Aerospace Structural Metals Handbook      Non-Ferrous Alloys - **AlC**  
 Author J. G. Sessler      Types 355 & C355

**1 GENERAL**

This heat treatable aluminum casting alloy is one of two alloy whose properties are primarily determined by its high silicon content in combination with magnesium. 355 and its high purity premium strength variant C355 also contain copper which makes them stronger but less ductile and corrosion resistant than the other alloys of this group. 355. The general properties of these alloys are very similar. They are distinguished by exceptional castability and pressure tightness, high corrosion resistance and good weldability. 355 is available in the form of sand and permanent mold casting alloys, while C355 is primarily a permanent mold casting. Data in the following paragraphs applies to 355 unless specifically noted C355.

**1.01 Commercial Designations**  
 355 and C355 (2)

**1.02 Alternate Designations**  
 ASTM E20-Standard casting, ASTM B208 Permanent mold casting, JISNA A3553/A3553-1976

**1.08 Melting and Casting Practice**  
 These alloys can be melted and cast by all common aluminum alloy casting techniques without special considerations, see Section 4.01.

**1.09 Special Considerations**

**2 PHYSICAL AND ENVIRONMENTAL EFFECTS**

**2.01 Thermal Properties**  
 2.011 Melting range, 1015 to 1110 F (546 to 605) °C

**2.02 Phase changes.** Alloy is subject to precipitation. 2.021 Time-temperature-transformation diagrams. 2.022 (Table) Thermal conductivity. 2.023 (Figure) Thermal expansion. 2.025 Specific heat, 0.23 Btu per (lb-F) at 212 F (95.6)

**Al**  
**5.0 Si**  
**1.3 Cu**  
**0.5 Mg**

出力: ⑦グラフ表示

出力: ⑧テキスト表示

**ASMD (version 2.1, data updated 2009.5)** [Material Cross Index](#) | [PDF](#)

**Material Group:** Aluminum Alloys, Wrought, Heat Treatable  
**Material Name:** Aluminum Alloy Al-7049, Al-7.6Zn-2.5Mg-1.5Cu-0.15Cr [View PDF for this material](#)

**Property:** Elongation (percent)  
**Independent Variable:** Exposure Temperature (F)

**Step 1. Select Materials**  
 Select one or more materials from the list below. Hold the control key to select multiple materials. Available data curves will be displayed on the right. Then proceed to Step 2.

**Material 1: Aluminum Alloy Al-7049, Al-7.6Zn-2.5Mg-1.5Cu-0.15Cr**

**⑨実験材料の選択**

**Step 2. Select Data Curves/Test Conditions**  
 Select between one and twenty data curve descriptions from the list below to view graphs. Hold the Control key to select multiple data curves.  
 Key: Selected Material (Mat. Curve) - Material

1. Material 1 (1.1) - C1: RT, T73, 5" forgings, exposed 1/2 hr. (e-2), exp data  
 2. Material 1 (1.2) - C2: smooth curve of C1  
 3. Material 1 (1.3) - C3: 10 hr exp data  
 4. Material 1 (1.4) - C4: smooth curve of C3  
 5. Material 1 (1.5) - C5: 100 hr exp data

**⑩複数テスト状況/データ曲線の選択**

**⑪X軸Y軸のしきい値の変更**

**⑫単位の変更**

**Elongation of Aluminum Alloy Al-7049... vs. Exposure Temperature**

Graph showing Elongation (percent) vs. Exposure Temperature (F) for Aluminum Alloy Al-7049. Three data series are plotted: Material 1 (1.1) (red), Material 1 (1.2) (blue), and Material 1 (1.3) (green).

**⑬グラフを指定し、右クリック。ビットマップにてグラフをCopy可能。**

**ASMD (version 2.1, data updated 2009.5)** [Material Cross Index](#) | [PDF](#)

**Material Group:** Aluminum Alloys, Wrought, Heat Treatable  
**Material Name:** Aluminum Alloy Al-7049, Al-7.6Zn-2.5Mg-1.5Cu-0.15Cr [View PDF for this material](#)

**Property:** Elongation (percent)  
**Independent Variable:** Exposure Temperature (F)

**Step 1. Select Materials**  
 Select one or more materials from the list below. Hold the control key to select multiple materials. Available data curves will be displayed on the right. Then proceed to Step 2.

**Material 1: Aluminum Alloy Al-7049, Al-7.6Zn-2.5Mg-1.5Cu-0.15Cr**

**Step 2. Select Data Curves/Test Conditions**  
 Select a desired curve from the list to view graph.

**Material 1 (1.1) - C1: RT, T73, 5" forgings, exposed 1/2 hr. (e-2), exp data**  
**Material 1 (1.2) - C2: smooth curve of C1**  
**Material 1 (1.3) - C3: 10 hr exp data**  
**Material 1 (1.4) - C4: smooth curve of C3**  
**Material 1 (1.5) - C5: 100 hr exp data**

**Range Parameters**

X-Axis: Minimum 75.967, Maximum 14.15  
 Y-Axis: Minimum 7.8912, Maximum 14.15

**Graph Options**

Unit Origin: 0, Unit Conversion: percent

**Text Output:**

Curve 1  
 1.1597e+01 0.4098e+00 C1: 1/2 hr. exp data  
 1.1597e+01 0.4098e+00 C1: smooth curve of C1  
 1.1597e+01 0.4098e+00 C1: 10 hr. exp data  
 1.1597e+01 0.4098e+00 C1: smooth curve of C3  
 1.1597e+01 0.4098e+00 C1: 100 hr. exp data

**⑭テキスト表示の場合は、すべての項目の実験値が表示されます。**

**⑮レファレンスは、テキスト表示のみ**

**ASMD (version 2.2, data updated 2010.1)** [Material Cross Index](#) | [PDF](#)

**Search By Property:** stress

**Select Property Name:**

- Alternating Pseudo Stress
- Applied Stress
- Burst Stress
- Compressive Flow Stress
- Compressive Stress
- Compressive Stress, True
- Creep, Applied Stress
- Exposure Stress
- Fatigue, Alternating Stress
- Fatigue, Cyclic Stress
- Fatigue, Maximum Stress
- Fatigue, Mean Stress
- Fatigue Stress
- Fatigue, Stress Amplitude
- Fatigue, Stress Range
- Flow Stress
- Fracture Stress
- Fracture Toughness, Plane Stress/Critical Stress-Intensity Fac., Kc
- Galling Stress

**⑯検索したい特性名の入力**  
 Ex. Time, Stress, yield等

**⑰特性名の選択**  
 (例: Fatigue, Maximum Stress 最大圧力での金属疲労)

**⑱独立変数の選択**  
 (この場合は、データ種別)  
 (例: Cold Reduction (percent) 冷間圧延)

**ASMD (version 2.2, data updated 2010.1)** [Material Cross Index](#) | [PDF](#)

**Search By Property:** stress

**Select Property Name:** Fatigue, Maximum Stress (66 properties)

**Property Range**  
 Fatigue, Maximum Stress (ksi) 0.0 - 261.71

Select an Independent Variable, and then click the Show Graph or Show Text button.

Independent Variable	Minimum	Maximum
<input type="checkbox"/> Average Grain Size (mil)	0.00722107096371	5.98
<input type="checkbox"/> Cold Reduction (percent)	0.33	49.43
<input type="checkbox"/> Condition (alternate/no units)	1.0	9.0
<input type="checkbox"/> Cycles (cycles)	1.0	2986945753.39
<input type="checkbox"/> Cycles to Failure (cycles)	1.01	1006817847.59
<input type="checkbox"/> Cycles to First/Initiation Crack (cycles)	63.17	3689173.95
<input type="checkbox"/> Dendrite Arm Spacing, Average (10[-4] in)	6.35	9.53
<input type="checkbox"/> Minimum Stress (ksi)	-145.11	249.02
<input type="checkbox"/> Stress Concentration Factor (alternate/no units)	1.0	5.93
<input type="checkbox"/> Cycles to Failure (cycles)	1.01	1006817847.59
<input type="checkbox"/> Stress Ratio, R (fraction)	-1.0	1.0
<input type="checkbox"/> Temperature (F)	-428.78	1462.36
<input type="checkbox"/> Time to Rupture/Fracture (h)	17.28	21.12

**お問合せ先**

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