



网络版CINDAS

宇航结构金属数据库 (Aerospace Structural Metals Database, ASMD)

这个基于网络的ASMD数据库能让用户即时了解223种合金的性质和相互之间的关系，并提供8万条数据曲线。友好的检索界面能帮助用户快速比较选择合金的特性。数字和图表信息也是ASMD数据库的一部分，包括每种合金的附加信息都综合在一个PDF文档。

ASMD用户

大学	课程辅导教材
技术类院校	项目参考指南
政府机构	新材料研究
航天工业	汽轮机设计
汽车工业	开发发动机和车架
工业供应商	制造, 机械
研究类公司	研发
还有很多。。。	

关于ASMD数据库

ASMD数据库由CINDAS出版社开发，是广受赞誉的宇航结构金属手册（ASMH）的网络版。CINDAS出版社与美国空军材料部（位于怀特-帕特森空军基地）签署了研发合作协议（Cooperative Research and Development Agreement, CRADA），共同完成和发布ASMD数据库。

通过以下方式检索浏览ASMD数据库

材料组别

(如铝, 钛, 镍合金, 不锈钢等)

材料名称

(如Al6061, Ti-6Al-4V, AZ63A等.)

性质组别

(如机械, 热物理等)

性质名称

(如屈变力, 伸长率, 断裂韧性等)

性质组别

ASMD数据库包含540多种不同的性质，这些性质被分类于20个易查找的性质组别中。同时，您也可以通过输入关键字搜索性质名称，可以很直接的找到您感兴趣的性质。

热物理

热氧化

电气与核能

力学性质

强度，应力，硬度，疲劳裂纹扩展，冲击力、应变、压下率、变形及其他

温度

时间，寿命

腐蚀、氧化和重量变化

长度、厚度、直径、大小和粒子大小

成分，阶段

其他。。。

浏览检索

检索： 输入性质或者材料的全名或者部分名称

The screenshot shows the CINDAS ASMD search interface. At the top right is a 'User Options' button. Below it are two search fields: 'Material Name' with a dropdown menu showing 'e.g. ni inco, Nickel Incoloy' and a 'Go' button; and 'Property Name' with a dropdown menu showing 'e.g. electric, Electric Resistivity' and a 'Go' button. To the left, there are dropdown menus for 'Material Group' and 'Property Group', both with 'Help' links. At the bottom right is a copyright notice: '© 2003-2009 CINDAS LLC'.

浏览： 使用下拉菜单浏览性质和材料。

The screenshot shows the CINDAS ASMD browse interface. At the top right is a 'User Options' button. Below it is a 'Select Property Group' dropdown menu with 'Mechanical Properties - Fatigue, Crack' selected. A large dropdown menu for 'Select Property Name' is open, listing various properties such as Alternating Pseudo Stress, Cycles to First Initiation Crack, Delay Cycles, Effective Crack Length, Fatigue Charpy Energy, Fatigue Crack Growth Rate, Fatigue Crack Growth Rate per cycle, Fatigue Cyclic Stress, Fatigue Limit Endurance Limit, Fatigue Maximum Cyclic Stress, Fatigue Maximum Stress, Fatigue Stress, Fatigue Strength, Fatigue Strength Ratio, Fatigue Strength/Fatigue Stress, Fatigue Stress Amplitude, Fatigue Stress Range, Fatigue Torsional Strength, LCF, Mean Stress, Peak Pseudo Stress, Percent of Fatigue Max. Stress/Ultimate Strength, and True Fracture Stress. At the bottom right is a copyright notice: '© 2003-2009 CINDAS LLC'.

- 该数据库包含20个金属组别，223种金属合金，和20个性质组别、540多个性质

定制信息

选择：独立变量

The screenshot shows the CINDAS LLC ASMD software interface. The top navigation bar includes 'User Options' and 'Edit Selection'. The main area displays 'ASMD (version 2.1, data updated 2009.5)'. A dropdown menu 'Select Property Group' is set to 'Mechanical Properties - Fatigue, Crack'. A dropdown menu 'Select Property Name' is set to 'Fatigue, Alternating Stress'. Below these, a 'Property Range' table lists values for various parameters. At the bottom are 'Show Graph' and 'Show Text' buttons.

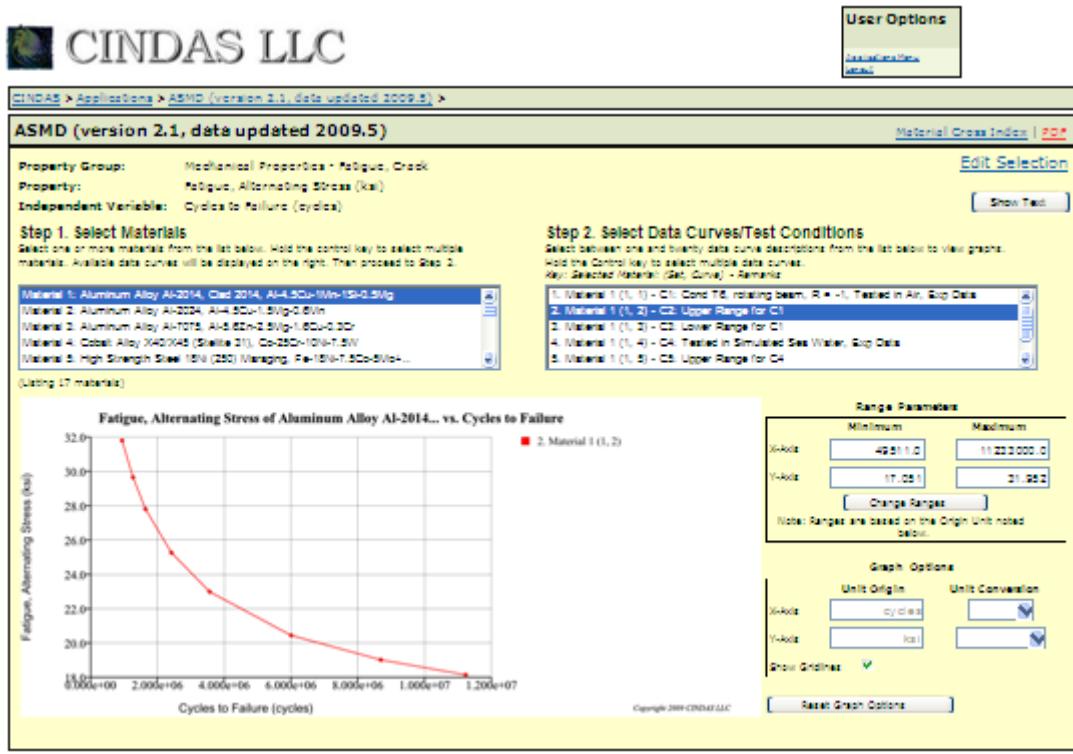
信息查看

用户能够在一张曲线图上查看多种材料的性质。

步骤一：选择材料

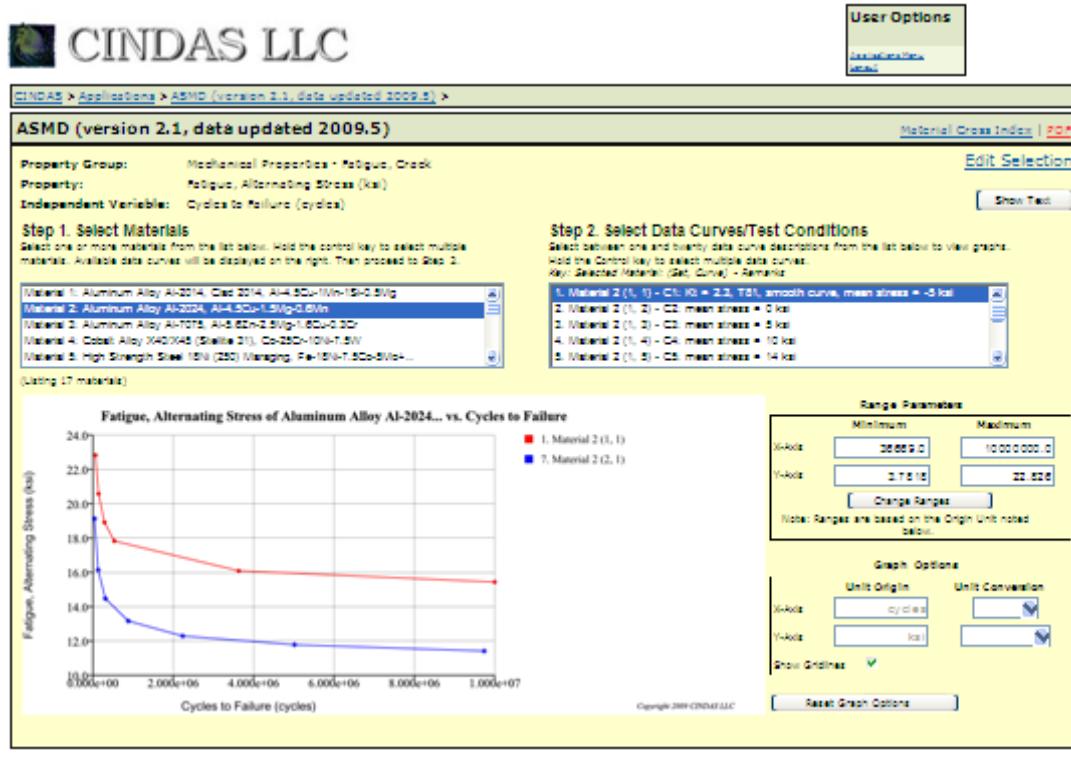
步骤二：选择数据曲线或者实验条件

注：用户可以随时点击“Show text”按钮，查看文本形式的描述和参考信息



结果形式：图表和数字

- 超过8千条数据曲线
- 颜色编码数据曲线
- 同一图表上不同材料多条曲线
- 图表坐标轴系数可改变
- 单位转换包
- 包括英制和国际单位制 (SI)
- 标有所有可能的参数单位
- 可以改变坐标轴系数



材料交叉索引

该数据库的材料交叉索引包含所有金属合金的商用名和指定名称，这个功能可以使用户在只知道商标名或商业名称的情况下，找到正确的金属合金。

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 TypeA, T-1 Type B, USS T-1, USS T-1 Type A, USS T-1 Type B
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, UNS K23
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, Tector (Allegheny-Ludlum)
High Strength Steel 8630, Fe-0.3C-0.55Ni-0.5Cr-0.25Mo	8630, AISI 8630, SAE 8630, B630H, UNS J13042, UNS J13050, UNS G86300
High Strength Steel E9310, Fe-0.1C-3.25Ni-1.2Cr-0.1Mo	E9310, SAE 9310, AISI E 9310 H, AMS 6260 E, UNS G93106
High Strength Steel 17-22A(S), 17-22A(V), Fe-C-1.3Cr+..	17-22A(S), 17-22(V), Uniloy 14 MV (Universal Cyclops designation for 17-22A(S))
High Strength Steel D6A, D6AC, Fe-0.48C-1.0Cr-1.0Mo-0.55Ni	D6A(air melt), D6AC, UNS K24728, UNS K24729
High Strength Steel Hy-Tuf, Fe-0.25C-1.8Ni-1.5Si-1.3Mn-0.4Mo	Hy-Tuf, UNS K32590
High Strength Steel Nitralloy 135 Mod, Fe-0.4C-1.8Cr-1.1A+..	Nitralloy 135 modified, Nitralloy Type G modified, AMS 6470 Nitriding Steel, SAE 7140, U
High Strength Steel Hy-130/140, Fe-5Ni-0.55Cr-0.47Mo-0.075V	HY 130, 5 Ni-Cr-Mo-V Steel, UNS K51255
High Strength Steel 300-M, Fe-0.43C-1.8Ni-1.8Si-0.8Cr-0.4Mo+V	300M, Tricent, 4340 M, UNS K44220 , UNS K44540
High Strength Steel H-11 Mod, Fe-0.4C-5Cr-1.3Mo-0.5V	H-11 Mod, AISI Type H-11, SAE Type H-11, UNS T20611, Al Tech Potomac A, Carpenter
High Strength Steel 18Ni Maraging (250 G), Fe-18Ni-7.5Co-	

在线手册

ASMD数据库是纸本手册的互动网络版，提供金属合金的补充信息，丰富了ASMD数据的内容。

概况

商业名称

指定名称

金属规格

组成

热处理

形成&条件

熔铸

加工

金属处理

还有很多。。

Aerospace Structural Metals Handbook Non-Ferrous Alloys • AIWT
Author K. Brown 7475Al

1 GENERAL

Aluminum alloy 7475 is primarily an aerospace alloy used in a heat-treated condition. It is usually available as bare or clad sheet or as plate, but on occasions, extrusion and forgings have been made for special applications in place of its sister alloys, 7075 and 7175.

Alloy 7475 is basically a high purity version of 7075, i.e., it contains lower iron and silicon, and has marginally lower upper limits on copper and magnesium. Special proprietary processing may sometimes be given to 7475. The limits on chemical composition reduce the amounts of second phase constituents, which result in higher fracture toughness at the same level of strength and corrosion resistance. In over-aged tempers, for example, T7x, 7475 is resistant to exfoliation and stress corrosion. Most aerospace applications are for component requiring high strength and toughness at temperatures up to 300 F.

1.01 Commercial Designations
7475 aluminum alloy

1.02 Alternate Designations
UNS A97475

1.03 Specifications
7475-T7351 plate AMS 4202 [33]
7475-T651 plate AMS 4990 [34]

1.04 Composition
(TaNi) Aluminum Association composition limits.

1.05 Heat Treatment
Details of the heat treatments should be obtained, when required, from the specific supplier of the material due to possible differences in fabrication history, and consequent differences in response to heat treatments.

1.06 Hardness

T61 sheet: R₉₀ 99;
T761 sheet: R₉₀ 85;
T7351 plate: R₉₀ 76 to 85.

1.07 Forms and Conditions Available

Alloy 7475 is available as sheet (up to 0.25-inch thick) in both bare and clad forms, in either T61 or T761 tempers. It is also available in T7351, T651, T76351 and T651 plate up to approximately 4-inches in thickness, and in extruded rods for the manufacture of cartridge cases. Producers and aerospace companies have not investigated the availability of 7475 structural forgings and extrusions; however, the data are not found in the open literature.

Al
5.6 Zn
2.2 Mg
1.5 Cu
0.21 Cr
Low Si
Fe
Mn
Ti

对于 ASMD 数据库, 我们充满信心

ASMD 数据库检索快捷、高效，内容不断更新。越来越多的大学、研究机构正在使用 ASMD 数据库。本数据库在国内由 iGroup 亚太资讯集团公司代理。