FLAME RESISTANT MAGNESIUM ALLOYS

- Increased flammability resistance and good mechanical properties
- Flammability resistance certified acc. to the Federal Aviation Administration
- Remarkable cheaper than alloys with comparable flame resistance
- Processability in various casting processes (e.g. high pressure die casting, Thixomolding)

MATERIALS FOR TOMORROW

Because of its low density, its high specific strength and its almost unrestricted availability, magnesium is a **very popular lightweight material**. It is particularly suitable for applications in the mobility sector when it comes to **weight and emissions reduction**.

In a research project, LKR scientists managed it to develop magnesium alloys, which show the capability to self-extinguish in case of a fire.

This improvement in the fire resistance was achieved by means of the specific addition of elements which positively influence the oxidation behavior of the material.

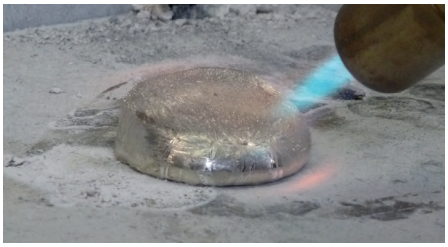
Stefan Gneiger
AIT Scientist at LKR

„Our investigations are focused mainly on alloys containing small amounts of calcium – calcium is cost-effective and widely available. Additionally, rare earth elements can be added to increase specific properties and to create tailored alloys for different applications."

BEFORE: MAGNESIUMALLOYS AZ91 AND AM60



AFTERWARDS: ADDITION OF CALCIUM AND YTTRIUM


CERTIFICATION

Passed flammability test according to FAA:

FAA Aircraft Materials Fire Test Handbook, Chapter 25; Oil Burner Flammability Test for Magnesium Alloy Seat Structure

TEST RESULTS:	Sample 1	Sample 2	Sample 3		
Initial Weight Measured in Grams	210	210	209		Test Passed
Residual Weight Measured in Grams	210	210	209		
Weight loss Calculated in %	0,00	0,00	0,00	(Max. Avr. < 10%)	
Start of Melting (Exposure time sec)	65	67	65		
Sustained ignition (Exposure time sec)	-	-	-	(Min. ≤ 120 sec)	
Extinguished (Timed in Seconds)	-	-	-		

Conditioning / Calibration

(min 24 HRS) 21° +/- 3°C
55% +/- 10 %
relative humidity

in
04.07.2016 15:30

out
24.08.2016 11:00

Please refer to Vauth „LAB LOG" Ref:
No. 13736
for detailed calibration results and references

The average weight loss is: 0 % (limit Max .10 %)

No ignition

APPLICATION

- Arm- and backrests of aircraft seats
- Housings and covers of aircraft engines


©RECARO, SL3510

As a subsidiary of AIT **LKR Leichtmetall-kompetenzzentrum Ranshofen GmbH** is pursuing a holistic research and development approach to lightweight construction in the vehicle sector - from new metal alloys and process technology to material-related structural design.

This makes LKR a powerful and independent partner for your development projects.

AIT AUSTRIAN INSTITUTE OF TECHNOLOGY GMBH
Center for Transport Technologies
LKR Leichtmetallkompetenzzentrum Ranshofen GmbH
Lamprechtshausenerstraße 61
5282 Ranshofen-Braunau

Stefan Gneiger
Tel +43 50550-6940
stefan.gneiger@ait.ac.at

www.ait.ac.at/en/lkr