

[iOS 18](#)[iPadOS 18](#)[visionOS 2](#)[watchOS 11](#)[iPhone 16](#)[iPhone 16 Pro](#)[All >](#)

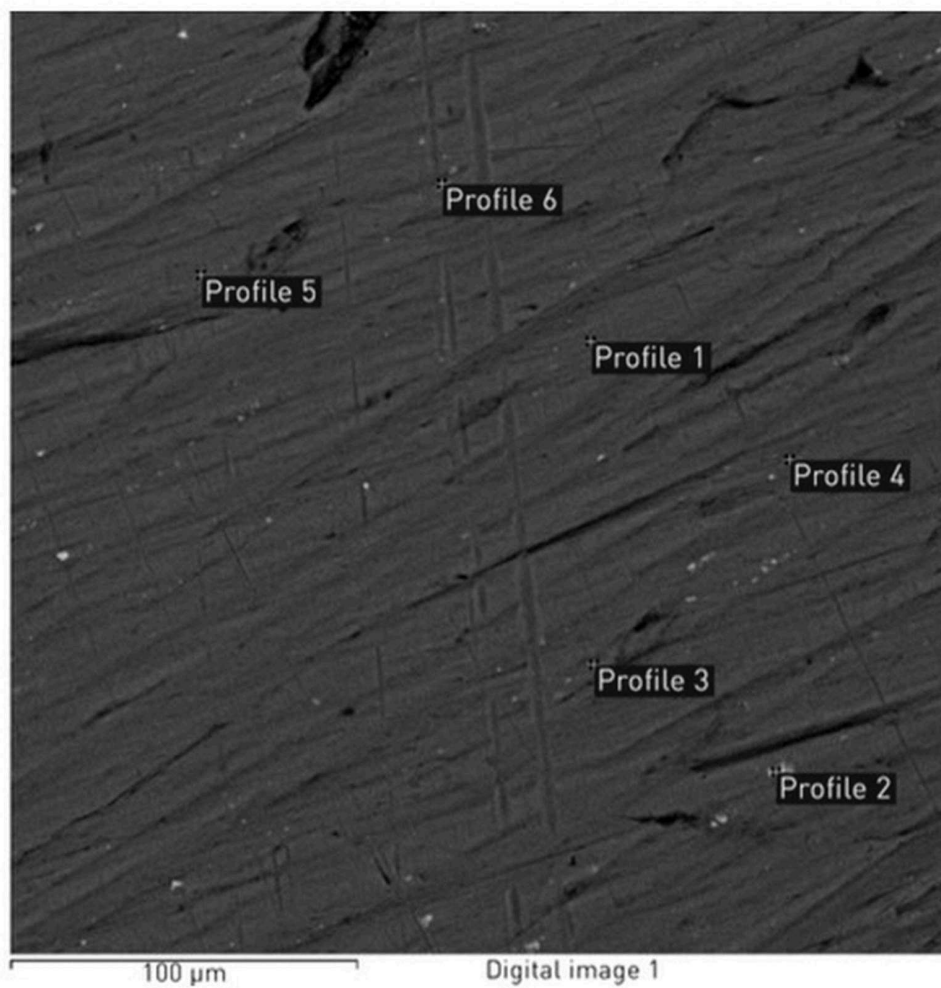
'iPhone 6s' Materials Analysis Confirms Stronger, Less Bendable Aluminum Alloy

Wednesday August 19, 2015 7:42 am PDT by [Eric Slivka](#)

Back in April, we first heard rumors about Apple planning to use 7000 Series aluminum alloys for the upcoming "iPhone 6s," taking advantage of some of the expertise gained in using the material for the Apple Watch Sport to make for a stronger iPhone body compared to the 6000 Series aluminum used on the iPhone 6 and 6 Plus. That device received significant "Bendgate" attention after some early users found the device bending slightly under pressure in their pockets.

Increasingly reliable reports of 7000 Series aluminum for the iPhone 6s followed by hands-on impressions of a "stronger body" and ultimately some measurements showing thickening of the shell's weak points have all pointed toward Apple making some changes to improve the strength and durability of the next iPhone.

MacRumors has recently received data on the elemental composition of the iPhone 6s shell, revealing that the aluminum alloy being used by Apple does indeed include roughly 5 percent zinc, which is in line with many 7000 Series alloys and not found in the iPhone 6 shell. A just-published video from Unbox Therapy is showing similar results, as well as test results showing a significantly stronger body more resistant to bending.



Sample points on milled surface of iPhone 6s rear shell

Interestingly, the data we received showed high iron levels of around 8 percent on average, although the iron composition varies significantly among test samples. Unbox Therapy, however, is not seeing particularly high levels of iron in its sample.

iPhone 6S Aluminum Bend Test



We've been told that some iron can be introduced into the shell during the milling process, which can account for some of the variability in measurements shared with MacRumors. The small quantities of iron at levels seen by Unbox Therapy can be used to enhance durability and make the material easier to work with during the casting process.

Elemental composition at each sample point

As shown in electron microscope images shared with MacRumors, the iPhone 6s shell is covered with a roughly 10-micron thick anodized aluminum oxide layer to help protect against corrosion. The anodization layer also enables Apple to introduce dyes for various color options.

Scanning electron microscope image showing 10-micron anodization with lighter aluminum color above. Chipped particle can also be seen.

Unbox Therapy also subjected the iPhone 6 and 6s shells to bending tests, finding that while the iPhone 6 shell began experiencing significant bending at roughly 30 pounds of pressure, the iPhone 6s shell withstood at least twice as much pressure before bending.

Apple is expected to unveil the iPhone 6s and 6s Plus at a media event on September 9. If tradition holds, the company would begin taking pre-orders a few days later and officially launch the new phone on Friday, September 18. The iPhone 6s should appear largely identical to the iPhone 6 but contain a number of hardware upgrades including Force Touch support, a new A9 chip with 2 GB of RAM, camera improvements, and more. A new rose gold or pink color option has also been rumored.

Related Forum: [iPhone](#)

[129 comments]

Get weekly top MacRumors stories in your inbox.

Email Address

Subscribe

Popular Stories

iPhone 16 Series Is Just Two Months Away: Everything We Know

Monday July 15, 2024 4:44 am PDT by [Tim Hardwick](#)

Apple typically releases its new iPhone series around mid-September, which means we are about two months out from the launch of the iPhone 16. Like the iPhone 15 series, this year's lineup is expected to stick with four models – iPhone 16, iPhone 16 Plus, iPhone 16 Pro, a...

[Read Full Article](#) • 126 comments

Best Buy's Black Friday in July Sale Takes Up to \$700 Off M3 MacBook Pro for Members

Monday July 15, 2024 11:05 am PDT by [Mitchel Broussard](#)

Best Buy's "Black Friday in July" sale is in full swing today, and in addition to a few iPad Air discounts we shared earlier, there are also some steep markdowns on the M3 MacBook Pro. You will need a My Best Buy Plus or Total membership in order to get some of these...

[Read Full Article](#) • 11 comments

Apple Releases First iOS 18 and iPadOS 18 Public Betas

Monday July 15, 2024 1:16 pm PDT by [Juli Clover](#)

Apple today provided the first betas of iOS 18 and iPadOS 18 to public beta testers, bringing the new software to the general public for the first time since the Worldwide Developers Conference in June. Apple has seeded three developer betas so far, and the first public beta...

[Read Full Article](#) • 85 comments

Apple's AirPods Pro 2 vs. Samsung's Galaxy Buds3 Pro

Saturday July 13, 2024 8:00 am PDT by [Juli Clover](#)

Samsung this week introduced its latest earbuds, the Galaxy Buds3 Pro, which look quite a bit like Apple's AirPods Pro 2. Given the similarities, we thought we'd compare Samsung's new earbuds to the AirPods Pro. Subscribe to the MacRumors YouTube channel for more...

[Read Full Article](#) • 59 comments

10 Reasons to Wait for Next Year's iPhone 17

Monday July 8, 2024 5:00 am PDT by [Tim Hardwick](#)

Apple's iPhone development roadmap runs several years into the future and the company is continually working with suppliers on several successive iPhone models simultaneously, which is why we sometimes get rumored feature leaks so far ahead of launch. The...

[Read Full Article](#) • 164 comments

Apple Seeds Revised Third Betas of iOS 18 and iPadOS 18 to Developers

Monday July 15, 2024 10:09 am PDT by [Juli Clover](#)

Apple today seeded updated third betas iOS 18 and iPadOS 18 to developers for testing purposes, with the software coming a week after Apple initially released the third betas. Registered developers are able to opt into the betas by opening up the Settings app, going to t...

[Read Full Article](#) • 45 comments

Top Rated Comments

AngerDanger

116 months ago

That device received significant "Bendgate" attention after some early users found the device bending slightly ('<https://www.macrumors.com/2014/09/23/iphone-6-plus-bending-pockets/>') under pressure in their pockets.

I'm just waiting to see what term is chosen if the iPhone ever has an issue pertaining to water.

Score: 29 Votes (Like | Disagree)

Flow39

116 months ago

Milking the #bendgate issue, one video at a time.

Score: 17 Votes (Like | Disagree)

mejsric

116 months ago

This guy again... wait.. Let me turn on AdBlock first before playing YouTube...

Score: 17 Votes (Like | Disagree)

DTphonehome

116 months ago

Now THIS is a teardown. Please count the electrons and confirm which elements are present.

Score: 17 Votes (Like | Disagree)

darcyf

116 months ago

For all you doubters out there:

My 6+ bent within the first week or two of ownership. That was just from being in my back pocket sitting in my office chair or car seat. Functioned while bent for about 8 months before the touch-sensitivity of the screen started getting flaky.

Went to the Apple store, and I actually had to pay them for a new phone, even with AppleCare, for what was clearly a design flaw. :mad:

You repeatedly sat on your 6+ in a car seat and an office chair and you think there's a flaw in the phone?

Score: 11 Votes (Like | Disagree)

NissanGuy23

116 months ago

If only 9 iPhone 6 and 6 Pluses ever bent I don't see why they are spending so much time and money reengineering the case.

Its just to shut up the people spreading the bendgate nonsense. Its for marketing reasons. Its Apple saying "look, we strengthened it case" even though nobody ever really had a problem with it. Or that's my take at least.

Score: 10 Votes (Like | Disagree)

Read All Comments



MacRumors attracts a broad audience of both consumers and professionals interested in the latest technologies and products. We also boast an active community focused on purchasing decisions and technical aspects of the iPhone, iPad, Mac, and other Apple platforms.

About MacRumors.com

Advertise on MacRumors

Our Staff

Arnold Kim

Editorial Director

[Email](#) • [Twitter](#)

Eric Slivka

Editor in Chief

[Email](#) • [Twitter](#)

Juli Clover

Managing Editor

[Email](#) • [Twitter](#)

Joe Rossignol

Senior Reporter

[Email](#) • [Twitter](#)

Mitchel Broussard

Deals Editor

[Email](#) • [Twitter](#)

Tim Hardwick

Senior Editor

[Email](#) • [Twitter](#)

Hartley Charlton

Senior Editor

[Email](#) • [Twitter](#)

Marianne Schultz

Project Manager

[Email](#) • [Twitter](#)

Dan Barbera

Video Content Producer

[Email](#) • [Twitter](#)

Ryan Barrieau

Graphic Designer

[Email](#) • [Twitter](#)

Steve Moser

Contributing Writer

[Email](#) • [Twitter](#)

Aaron Perris

Contributor

[Email](#) • [Twitter](#)

Related Links

Touch Arcade

'Metal Slug: Awakening' is Now Available on iOS and Android Devices, Steam Version Coming Soon

Out Now: 'Roia', 'Spirit of the Island', 'Asphalt Legends Unite', 'Slay the Poker', 'Heian City Story', 'Twilight Survivors', 'Dungeon Tracer', and More

YouTube

All iOS 18 Home Screen Customization Features!

SwitchArcade Round-Up: 'Teenage Mutant Ninja Turtles: Splintered Fate', Plus Other Releases and Sales

iOS 18 Public Beta Hands-On | Best New Features You NEED to Try!

Ultra Chill Water Diversion Game 'Roia' Now Available

SwitchArcade Round-Up: Reviews Featuring 'Princess Maker 2 Regeneration', Plus Today's Releases and Sales

Samsung Made AirPods and They're Actually REALLY Good!

Dinosaur Survival Game 'ARK: Ultimate Survivor Edition' Coming to iOS and Android Later this Year

Samsung vs Apple is HEATING Up: Samsung Unpacked

'Gunship Battle: Total Warfare' Adds New Hero System to the Military Strategy Game

The 10 Best NES Games on Nintendo Switch, Plus 5 We'd Like to See – SwitchArcade Special

Insta360 Flow Pro AI Gimbal is Crazy 🤖

Copyright © 2000–2024 MacRumors.com, LLC.

[Privacy / DMCA contact / Affiliate and FTC Disclosure](#)

[Accessibility Statement](#)

[[Featured On/Off](#)] [[Full Articles On/Off](#)] [[Fluid](#) | [Fluid HD](#)] [[Auto](#) | [Light](#) | [Dark](#)]

Information from your device can be used to personalize your ad experience.

[Do not sell or share my personal information.](#)