Ceramic Blades
“Issues” with Ceramic Blades

• Tang is to small for a proper fit
• Can’t sharpen ceramic blades
• Tang is to small for a strong fit
• Blade brittle, will break when dropped
Tang is to small for a proper fit?

- Terry Chippendale, who started knife-making only 10 months ago, showed us how he builds his ceramic knives.
- To date Terry build and sold 6 or so ceramic knives.
- Terry brought two "ready for epoxy" knives with to show the two methods he use to securely fit the "short" tang into a handle. The following power point presentation contains 20 self explanatory photos and remarks to explain his process.
- There were consensus that, even though the blades were not epoxied, they were already secure and firm in their setting.
Building a Ceramic Knife

Terry Chippendale
Blade & Dymond wood scales
Marking-out
Clamped in position for drilling
Pinning holes drilled
Marking-out the tang on a painted on white Tip-Ex backing
Ready for the Router
Drill 2\textsuperscript{nd} scale
Router
Handle Outline & shape
Ready for epoxy
Blade, Handle & Metal liner
Liner drilled for pinning
Blade with pinning for marking
Tang marked out
Drilling the outline
Cutting the outline
Fitting the tang into the cut-out
Shaping the liner
Shaping the scales
Final fit – ready for epoxy
Terry’s Summary

• Quick and easy - don’t make the blade, only fit the handle
• Could sell at up to R 2000.00 for bigger blades
• Everyone wants kitchen knives
• Makes sheaths for his ceramic knives
• If cared for and used correctly it will last
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Can’t sharpen ceramic blades!

- Pierre Grobbelaar, the importer of the Tormek range of sharpening machines and quite knowledgeable on ceramics and in particular on Zirconium dioxide.
- He bedazzled everyone with the crystal forming complexities and the reasons why Zirconium can be so hard jet tough and therefore suitable for these special blades.
- Since the ordinary Tormek stones will suffer the same difficulties than all other sharpening systems on ceramic blades, he was pleased to introduce us to the new "Blackstone" silicone from Tormek.
- With the "Blackstone" silicone and the low speed, water cooling and precision angle control with the knife-jig, it is possible to sharpen ceramic blades and even to do grinding of these ceramic blades.
- Pierre demonstrated in no time how to sharpen a blade with the ease of someone who did it before.
Sharpening the Tormek way

Pierre Grobbelaar
Proven record on Knives, Scissors and Tools
Original Grind Stone

SG-250: Ø 250 mm
SG-200: Ø 200 mm

Grit size: 220

Delivered with Tormek T-7 and T-3
Tormek Blackstone Silicon

- For HSS, exotic alloyed steels & tungsten carbide
- We tested it on Ceramic blades

**NEW**

<table>
<thead>
<tr>
<th>SB-250: Ø 250 mm</th>
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<td>Grit size: 220</td>
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<td>Available for Tormek T-7 and 2000</td>
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Tormek Japanese Waterstone

**NEW**

**SJ-250**

**SJ-200**

**SJ-250: Ø 250 mm**

**SJ-200: Ø 200 mm**

**Grit size: 4000**

**Available for**

Tormek T-7, T-3

2000 and 1200
Interesting points in summary

• There is no sharpening service for ceramic blades in SA – business opportunity?
• Could work well on a braai as cutting on steel can’t blunt the blade – we should demonstrate this
• Industrial top notch metal working tips are made from ceramics – can actually machine steel
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We had a surprise up our sleeves for Kevin. He was looking forward to see the cutting test machine, that he initiated the design of, in action.

This would be an endurance test, not only for the quality of the cutting edge, but also on how the assembly can stand up to the continued forces of "hard" cutting.

Since the machine was not ready yet we had to settle for the "Biological" Kevin Cutter. Kevin, always ready for an challenge took the ceramic knife, cutting board and sisal rope and got down to the job.

Due to the smaller and narrower physical features of a kitchen knife, he managed to keep going for some time when he declared that no ordinary knife will ever be subjected to this amount of abuse" - and the blade was still not broken and was still securely fitted in the handle.
Kevin Cutting Tester - Mechanical
Kevin Cutting Tester - Biological
Tang is to small for a strong fit?

- Several knifemakers had a go and finally Eddie managed to break the handle.
- Kevin was particularly curious and tested the ceramic knife on his side knife, made from Panzer36, hardened to 59 Rockwell C. Yes, he actually managed to cut a small piece out of the blade's spine with the ceramic blade, without damaging the it!
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Let’s be brave and see!
Blade brittle, will break when dropped!

• This time Kevin had something up his sleeve for the audience. Knowing that the knife was about to be dropped, he planned to drop a glass at the same time!

• After we elaborate on the perception that ceramic blades "would definitely" break if dropped from a working surface, a ceramic knife were deliberately dropped from a 0.92m working area onto an industrial strength concrete floor.

• With everyone in suspense, the count down started, the knife and Kevin's glass hit the floor and with the braking sound of glass, some knifemakers were out of their seats!

• The glass broke into many pieces, the knife did not! Now we could sigh a sigh of relieve and muster some courage together to drop the knife a couple more times, and yes it DID NOT break!
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SwedeTech / KMTs Ceramic Blade Competition

Challenge:
To design and construct a functional knife (or set of knives) from standard SwedeTech ceramic blade(s).

There will be two categories:
• Liner-Lock folder
• Professional food preparation knife (or set of knives). Available SwedeTech blades are; chef knife, pairing knife, vegetable / utility knife and fruit knife.
SwedeTech, the premium quality ceramic blades manufacturer from Zirconia (or zirconium dioxide) and Knife Machines and Tools (KMTs) wish to promote the utilisation of ceramic blades.

To this end, we invite knife makers to participate and to design and build functional and high quality knives with SwedeTech ceramic blades, available from KMTs. Participants will master the assembly of ceramic blades, a fast and lucrative and in demand method for custom knife making.
General Guidelines

1. The knife must be identifiable as a Custom/Handmade knife
2. The design should be functional, easily cleanable and hygienic and an asset to a professional chef or knife enthusiast.
3. Although the blade is fully manufactured and pre-signed by SwedeTech, somehow the maker must be identifiable on the remainder of the knife
4. For the liner-lock folder, the value should not exceed three times the value of the blade used and for the food preparation knife (or set of knives) two times the value of the blade(s) used.
5. Handle material and design are to the discretion of the knife maker.
6. You must agree to allow SwedeTech and KMTs to publish photos of your knife in national and international publications.
7. Judging will be done by a panel of seasoned knifemakers, appointed by KMTs, whose decision will be final.
8. All participants will receive written feedback on their submissions.
Prizes

1. **Liner-lock Folder**
   - 1st Prize R 500.00,
   - 2nd Prize R 300.00,
   - 3rd Prize R 200.00 in cash sponsored by SwedeTech.

   **Professional food preparation knife (or set of knives)**
   - 1st Prize R 500.00,
   - 2nd Prize R 300.00,
   - 3rd Prize R 200.00 in cash sponsored by SwedeTech.

2. SwedeTech will replace the cyramic blades use by the winners on both categories. (Winner, Runner-up and 2nd runner-up)

3. KMTs undertakes to buy the winning liner-lock folder at three times the value of the ceramic blade used and the professional food preparation knife (or set of knives) at two times the value of the ceramic blades used. This offer is subject to quality, design, standards, and how close the knife matches the guidelines.

4. KMTs will have the first right of refusal to buy the remaining enrolled knives.

5. Knives purchased by KMTs will be displayed in our knife collection cabinet in the shop, together with the contact details of the maker.

6. All entries and the results of the competition will be published on www.KMTs.co.za with reference to the makers.
Registration & Rules

1. There will be no charge for submission of any knife into this competition.

2. Entries to be submitted to KMTs by 23 October 2010. Entries could be delivered or couriered to KMTs, Fundus Landgoed 3, De Bruin Avenue, Akasia, Pretoria or be posted, by registered post, to Johan Oosthuysen, P.O. Box 59 946, Karenpark, 0118, South Africa.

3. Entries will be exhibited during the firm KMT's Belvedere the 10th customer day on 30 October 2010.

4. The winners will be announced and the awards made during the KMT's Belvedere the 10th customer day on 30 October 2010.

5. Submission of any knife will serve as an acknowledgment that you have accepted the above guidelines.
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