Struers
Ensuring Certainty

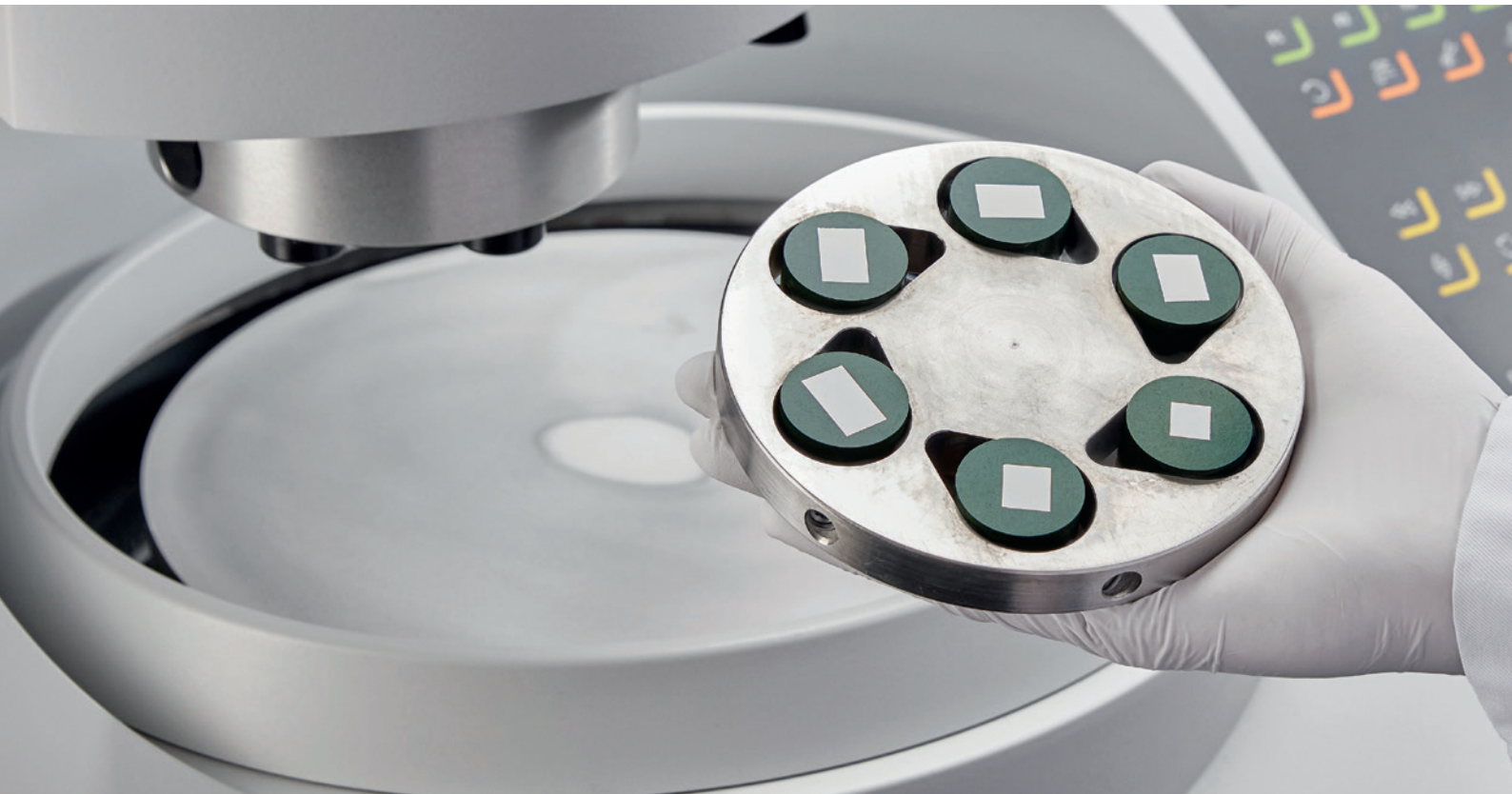
Struers polishing consumables

PERFECTLY POLISHED

Optimize your polishing process to your goal

EVERYTHING YOU NEED, NO MATTER YOUR NEED

Discover new opportunities to improve your polishing process – no matter what your material, preparation goal, lab setup, or preferences. With our high quality consumables and systematic approach, Struers can help you get the perfect polishing result.



Optimize towards your specific goal

What preparation requirements do you have for your analysis? Do you have a high throughput or just the occasional specimens? Do you work with one kind of material or many? Our complete range of polishing consumables covers every need – for any material, any preparation goal, and any lab setup – to ensure accurate and reliable results, while improving your process speed, efficiency, and safety.

With so many variables to consider, we know that changing your polishing process might feel like a hassle or a risk. We take a systematic approach to methods, so you can have full confidence in the quality and reproducibility of your polishing process. Our application specialists can recommend and help you implement an optimized method for your material and preparation goal.

Ensure certainty with a complete solutions partner

Our equipment and consumables are designed to work together to get the most out of your investment. And you can get consumables, accessories, and equipment for every step of your materialographic process, from cutting to verification, all from the one partner. These are reliably delivered when you need them to minimize your risk and maximize your uptime.

You can also get training, service, and support – all through Struers – that draws on more than 140 years of knowledge in materialography and practical experience with solutions from a wide range of industries. We call this ensuring certainty, and it is the reason we are the partner of choice for thousands of materialographic and hardness testing professionals worldwide.

A customer working for the mining industry reduced its preparation time by over

↓40 %

Using Struers methods, polishing cloths, and DiaPro All-in-One diamond solutions

OPPORTUNITIES TO OPTIMIZE

Polishing removes the deformation remaining from the previous steps using successively finer grain sizes. Polishing can be divided into two main parts.

Cutting

Mounting

Grinding/polishing

Diamond polishing (DP): Diamonds thoroughly remove scratches while keeping the specimen plane

Oxide polishing (OP): Chemical activity and gentle polishing produce perfect scratch and deformation-free specimens

Verification

Ensure reproducible results – time after time

Even the most skilled operators introduce waste, variation, and errors when dosing suspensions and lubricants. All-in-one diamond solutions are easier to dose than mixing a suspension and lubricant, and will increase your reproducibility by standardizing your process. No matter if you choose Struers all-in-one diamond solutions or a suspension and lubricant, our formulation ensures the diamonds are evenly distributed so you get the same performance every time.

60 %

of all materialographic results depend on the experience and skills of a single individual

Maximize your productivity and efficiency

Working more efficiently is not just about reducing your preparation time, but increasing your yield. Consumables providing high removal, easy dosing and cleaning of specimens, and short run in times for new polishing cloths, can both speed up your process time and reduce your consumable consumption.

Guard your working environment

Health and safety in the lab is paramount.
The classification of your products affects everything from your use of personal protective equipment, formulation of work instructions, and document handling. We develop our own consumables in-house, proactively responding to changing REACH regulations, to provide you with high-performance products with the lowest possible chemical classification.

Get the fastest possible lead time

Whether you work in failure analysis, research and development, or quality control, the lab is often evaluated on the ability to finish the preparation as quickly as possible. The right methods and consumables can remove process waste, with shorter steps or fewer steps.

Minimizing deformation in your plane grinding process can reduce your polishing time, but so too can using consumables optimized to your material. This is why Struers takes a holistic approach to not only your grinding and polishing steps, but your whole materialographic process.

A CONSUMABLE FOR ANY NEED

For a standardized process with unbeatable speed and quality

Do you work with a specific material with a high throughput and automated equipment? Then DiaPro All-in-One diamond solutions are simply the best you can get. These water-based, All-in-One polycrystalline diamond solutions are uniquely designed to work with a dedicated polishing cloth to deliver the highest quality preparation results and maximum reproducibility in the fastest possible time.

Discover our unique DiaPro All-in-One diamond solutions on page 8

Polishing cloths for any task

No matter your material, setup, or preparation requirements, you will find a polishing cloth to support high quality results, high reproducibility, and fast preparation. Combine with either DiaDuo-2 All-in-One diamond solutions or DP-Products and DP-Lubricants, or use a dedicated DiaPro All-in-One diamond solution optimized to your polishing cloth.

Discover our full range of polishing cloths on page 10

For a simple setup

Where efficiency, value, and throughput are your priorities, DiaDuo-2 All-in-One diamond solutions are ideal. These water-based solutions contain monocrystalline diamonds, and maximize reproducibility for high throughput labs. They are also the perfect choice for those who have little or limited experience in materialographic preparation and require a simple lab setup.

Discover the efficient DiaDuo-2 All-in-One diamond solutions on page 11

For full flexibility

You can combine DP-Products and DP-Lubricants – and our wide range of polishing cloths – to work efficiently with many different materials. Our complete range consists of a diamond format - suspension, stick, spray, or paste - for any material type, and meets your requirements regarding speed, quality, and efficiency.

Discover our DP-Products and DP-Lubricants on page 12

For the perfect finish

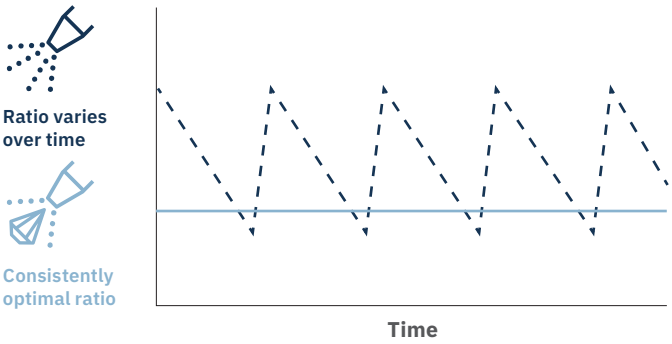
Do you need to remove all scratches and deformation to achieve your preparation goal? Our Oxide Polishing Suspensions provide completely scratch and deformation-free specimens quickly and efficiently. You will find a version for all material types, plus NonDry versions dedicated for automatic equipment to prevent clogging up tubes.

Discover our fast-acting OP-Suspensions on page 14

DISCOVER DIAPRO SOLUTIONS

Completely standardized for total reliability

Ratio between diamonds and lubricants



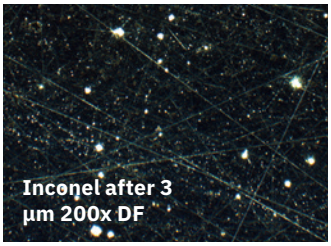
The unique combination of a dedicated DiaPro All-in-One diamond solution, which combines abrasives and lubricant, and polishing cloth makes selection easy and supports a completely standardized process. These all-in-one solutions contain the optimal ratio of polycrystalline diamonds and lubricant, so they are easy to dose and ensure the same performance every time. With DiaPro All-in-One diamond solutions, specimen cleaning is also easy, helping you avoid contamination.

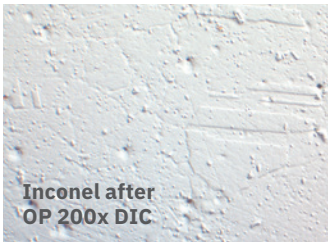
- DP-Suspension and DP-Lubricant
- DiaPro All-in-One diamond solution

Deliver the highest quality results

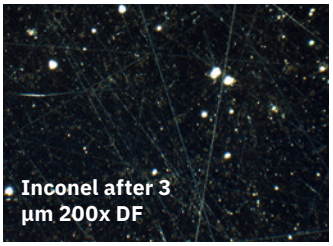
Example result of DiaPro All-in-One diamond solution optimized to work with the cloth

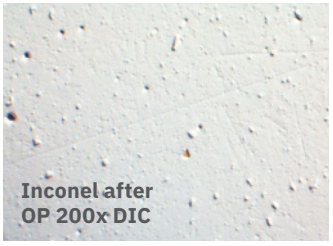
DP-Suspension P/DP-Lubricant





DiaPro Dac 3 µm





Each DiaPro All-in-One diamond solution has been optimized for the different surface compositions of our polishing cloths to deliver maximum performance. With their polycrystalline diamonds, DiaPro All-in-One diamond solutions are the best solution for those that need the highest preparation quality in terms of scratch pattern, minimal deformation, and exceptional planeness.

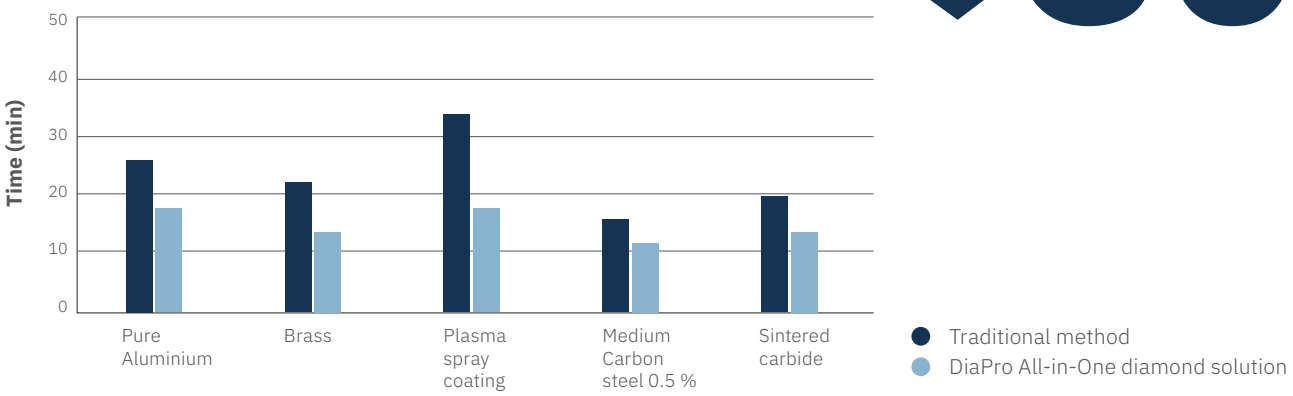
In the fastest possible time

DiaPro All-in-One diamond solutions enable an easy preparation with fewer steps and a shorter method. Running in your polishing cloth takes less than 30 seconds, compared to up to 15 minutes with traditional suspension. DiaPro All-in-One diamond solutions provide high removal to quickly remove scratches, and easy specimen cleaning to speed up your process.

Reduce your preparation time by an average of

30 %

Time comparison chart



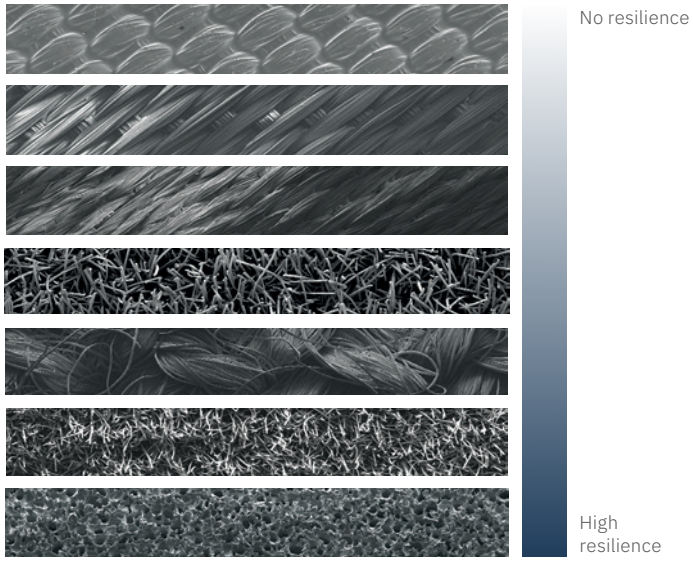
Minimize your use of classified products

Health and safety is an important consideration. DiaPro All-in-One diamond solutions are water-based and do not contain solvents, providing you with a safer polishing process.

Find your ideal diamond solution on page 18

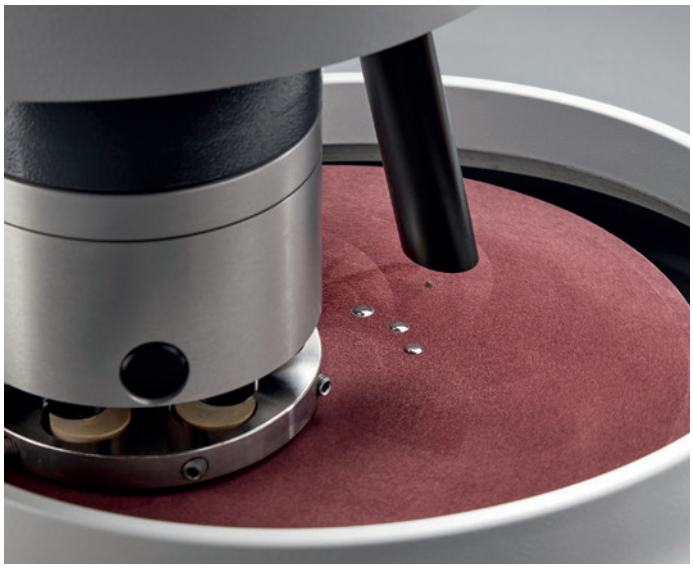
DISCOVER POLISHING CLOTHS

Any material, goal, or setup



No matter your preparation goal or material, there is a high quality Struers polishing cloth for you. Each cloth has a unique fabric characteristic to provide optimal performance for different application areas. With a version for any type of equipment, you can combine your polishing cloth with either DiaDuo-2 All-in-One diamond solutions or DP-Products and DP-Lubricants. For the highest quality results in the fastest possible time, use a DiaPro All-in-One diamond solution optimized for a dedicated polishing cloth.

Supports quality and efficiency



The cloth fabric retains abrasives to provide high removal and short preparation times – while ensuring high quality results. The long lifetime of our polishing cloths means you do not have to change them very often. Magnetic application makes our MD polishing cloths quick and easy to change, with self-adhesive versions also available to suit any preference.

Find your ideal cloth on page 16

Our extensive quality control ensures reliable performance

DISCOVER DIADUO-2 SOLUTIONS

Maximize your efficiency

DiaDuo-2 All-in-One diamond solutions, which combine abrasives and lubricant, are easy and efficient to use, compared to mixing your diamond suspension and lubricant. Their monocrystalline diamonds provide you with excellent value to maximize your efficiency.

Eliminate errors

Support a standardized process and maximize reproducibility with DiaDuo-2 All-in-One diamond solutions. They eliminate the risk of an incorrect dosing ratio between suspension and lubricant, while grain sizes are clearly indicated to prevent mistakes. Being water-based, they also make it easy to clean specimens to avoid contamination.

Find your ideal diamond solution on page 18

ONE simple setup to prepare many different specimens

DISCOVER DP-PRODUCTS AND DP-LUBRICANTS

Maximize your flexibility

You have complete flexibility with our full range of DP-Products and DP-Lubricants for diamond polishing, together with our high quality polishing cloths. With a dedicated solution for any need, you can combine our products to create your perfect match.

Our diamond abrasives come in many different formats to suit your application preference – suspension, paste, spray, or stick – and in a wide range of grain sizes. Most come in both a polycrystalline version and a monocrystalline version to meet different process priorities.

Our alcohol- or water-based lubricants offer a dedicated solution for any material or need – including if you work with water-sensitive materials.

Optimal lubrication and cooling

Avoid heat damage and achieve reproducible results. Our full range of lubricants helps optimize the lubrication and cooling for each type of material.

Correct dosing and use of the lubricant helps improve both the performance and lifespan of the cloth.

Find your ideal DP-Product and DP-Lubricant on page 18

Choose polycrystalline diamonds to **maximize quality**

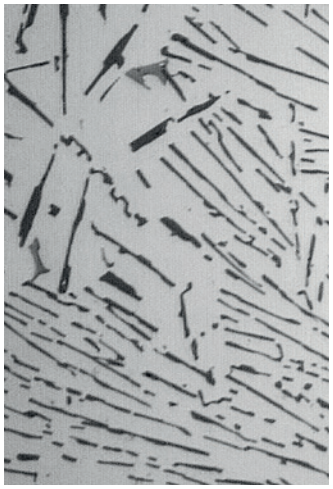
Choose monocrystalline diamonds to **optimize efficiency**

DISCOVER OXIDE POLISHING SUSPENSIONS

Achieve a perfect surface finish

Scratches remain on AlSi12 alloy after diamond polishing with 3 µm

Zero deformation remains on AlSi12 after oxide polishing



Our Oxide Polishing Suspensions provide very fine, gentle abrasion to remove absolutely all scratches and deformation. These suspensions have been optimized to work with our Chem and Nap polishing cloths, and we have versions available to oxide polish any material.

Zero compromise on speed

You can achieve this perfect surface finish quickly and efficiently. The chemical reaction builds a brittle layer, which is removed by the very small grain size particles. You can further increase the chemical activity by adding chemical additives for polishing resistant materials.

Minimize your risk

Our NonDry versions prevent interruptions by ensuring that dosing tubes do not dry up, which makes them ideal for automatic lab setups where avoiding process stops are a priority. They also reduce the risk of damage from crystals embedded in your polishing cloths.

Find your ideal OP-Suspension on page 20

OP-S
Fumed silica suspension for polishing.
For very ductile and non-ferrous materials as well as ceramics.
Suitable for mixing with chemical additives for polishing of resistant materials.
Grain size 0.25 µm (agglomerated).
Store above freezing point.
Struers
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OP-U
Colloidal silica suspension for polishing.
For heterogeneous materials like composites, carbon, and low alloy steels.
Ready to use.
Grain size 0.04 µm.
Store above freezing point.
Struers
Ensuring Certainty
OP-A
Acidic alumina suspension for polishing.
For high-alloy steels, nickel-based alloys, and copper.
Instruction for use: Dilute with up to 50% water before use.
Grain size 0.1 µm.
Shake well before use.
Struers
Ensuring Certainty
OP-U NonDry
Colloidal silica suspension for polishing.
For heterogeneous materials like composites, carbon, and low alloy steels.
Ready to use.
NonDry version optimized to prevent tube clogging.
Grain size 0.04 µm.
Store above freezing point.
Struers
Ensuring Certainty
OP-S NonDry
Fumed silica suspension for polishing.
For very ductile and non-ferrous materials as well as ceramics.
Suitable for mixing with chemical additives for polishing of resistant materials.
NonDry version optimized to prevent tube clogging.
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Struers
Ensuring Certainty

FIND YOUR IDEAL CLOTH

See our recommended type of polishing cloth for your material and preparation requirements

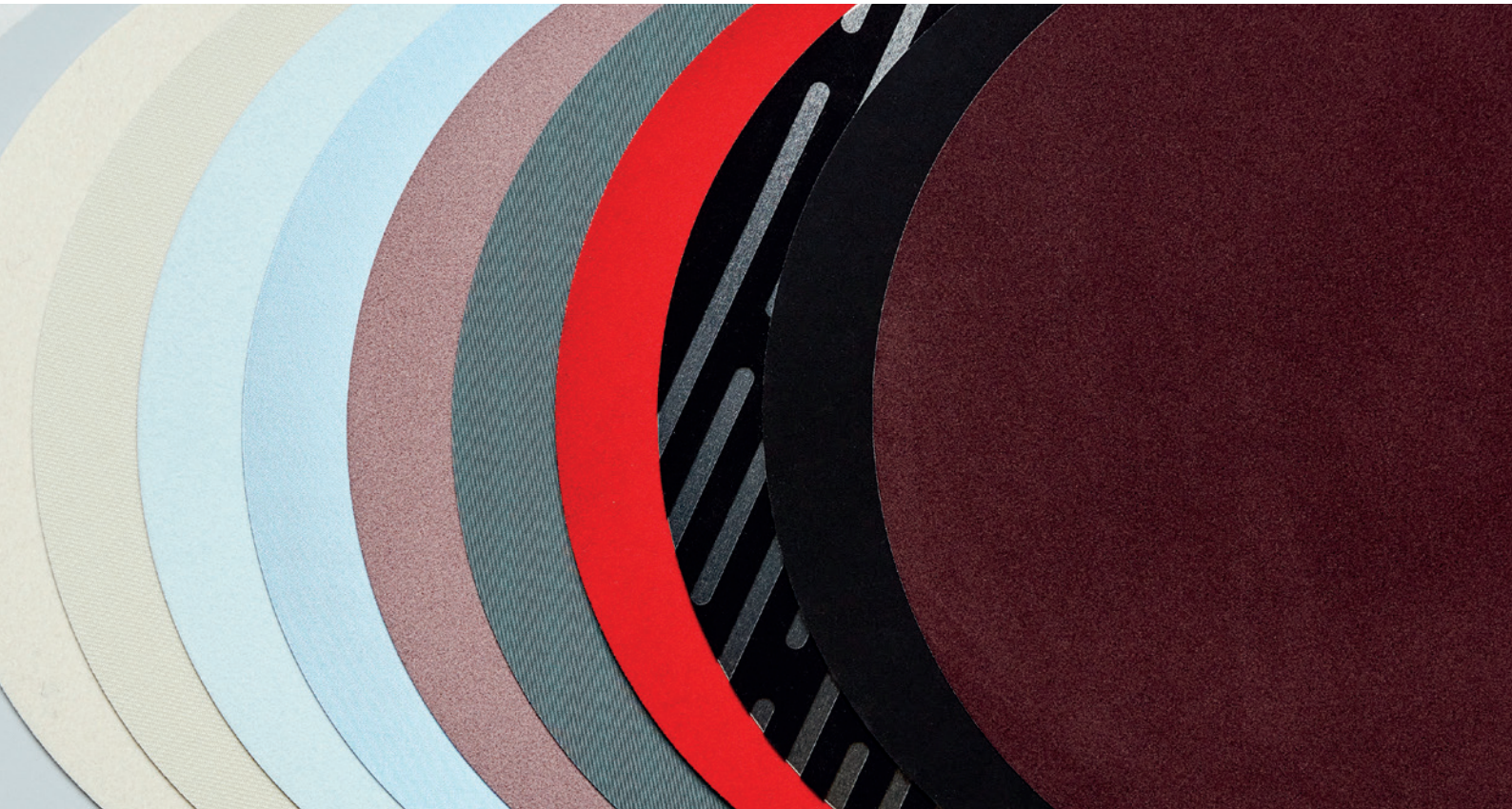
Material	Hardness HV	Preparation requirements: Hardness Testing (Welds, Layers)	Microscopy (Etching, Hardness Testing (Vickers))	Automated Image Analysis (Grain size, Inclusions)	Electron Microscopy (EBSD, Phase identification)
		Decreasing abrasive size: 9 µm	6-3 µm	3-1 µm	≤ 1 µm
Non ferrous Aluminium, Copper, Pure Ti and Mg alloy	**30 - 180**	Fine grinding	Woven cloth	Napped cloth	Napped / Non-woven cloth
Ferrous/Non-ferrous Steels ductile as Stainless Steel. Ti-alloys and Ni-alloys	**250-700**	Fine grinding	Woven cloth	Napped cloth	Napped / Non-woven cloth
Ferrous and sintered carbides	**1000 - 1400**	Woven cloth	Woven cloth	Woven cloth	Napped / Non-woven cloth
Minerals and ceramics	**1400**	Woven cloth	Woven cloth	Woven cloth	Napped / Non-woven cloth

Napped cloth – “with raised fibres“
Acts like a soft cloth due to the flattening of the nap during use. Use short nap cloths for final polishing (<1 µm), or long nap cloths to withstand high pressure polishing (<3 µm) on hard materials.

Woven cloth – “with interlocked threads“
Woven cloths can be hard or soft, depending on the thread material; for example, acetate is hard – wool is soft.

Hard woven cloths are for the polishing of harder materials with 3, 6, or 9 µm. Soft woven cloths use smaller abrasives and are for softer materials.

Non-woven cloth – “with entangled fibers”
Non-woven cloths come in two types - porous cloth structures for final polishing (<1 µm) and dense cloth structures for low resilience purposes, for example on composites, and also for use with larger abrasives.



FIND YOUR IDEAL DIAMOND AND LUBRICANT SOLUTION

Whatever your need, we have a diamond polishing solution for you

		Your process priority				
		High throughput To prepare many specimens per time unit	**Speed** Total process time is short	**Efficiency** Prepare many different materials with fewer resources	**Process standardization** Less user input or know-how required	**Flexibility** Different products can be combined in multiple ways
Diamond suspension	**DiaPro ***	● ● ● ●	● ● ● ●	● ●	● ● ● ●	●
	DiaDuo-2 *	● ● ●	● ● ●	● ● ● ●	● ● ●	● ●
	DP-Suspensions	● ●	● ● ●	● ● ●	● ●	● ● ● ●
	DP-Spray	●	● ●	● ● ●	●	● ● ● ●
	DP-Stick & DP-Paste	●	●	●	●	● ● ●

● ● ● ● = maximum
● = minimum

* All-in-one diamond solutions that combine abrasive and lubricant

In combination with our DP-Products, our DP-Lubricants provide a flexible solution no matter what your material or goal

		Your process priority			
		Health & Safety Water- or alcohol-based	**Cooling efficiency** Optimizes cutting property of diamonds	**Lubrication efficiency** Layer between specimen and polishing cloth	**Suitable for water-sensitive specimens**
Lubricant	**DP-Lubricant Green**	● ● ● ●	● ● ●	● ●	
	DP-Lubricant Purple	● ●	● ● ● ●	● ●	● ●
	DP-Lubricant Blue	●	● ● ● ●	● ●	● ●
	DP-Lubricant Red	● ● ●	●	● ● ● ●	
	DP-Lubricant Brown	● ●	● ● ● ●	● ●	● ● ● (●)
	DP-Lubricant Yellow	● ●	● ●	● ● ●	● ● ● (●)

● ● ● ● = maximum
● = minimum

(●) When used in combination with DP-Suspension A

FIND YOUR IDEAL OXIDE POLISHING SUSPENSION

Whether your goal is completely deformation- and scratch-free specimens or your material is extremely polishing resistant, we have an Oxide polishing solution to meet your preparation requirements quickly and efficiently.

Preparation requirement free from deformation and scratches Electron Microscopy: EBSD, Phase identification	
Hard/medium hard material For example steel or carbon steels	OP-U NonDry OP-U

Polishing resistant material or material difficult to prepare by mechanical preparation	
Extremely hard material For example sintered carbides or ceramics	OP-S NonDry* OP-S*
Ductile material For example nickel-based alloys or refractory metals	OP-S NonDry* OP-S* OP-A
Soft material For example copper	OP-S NonDry* OP-S* OP-A

*** Chemical additive can be added**

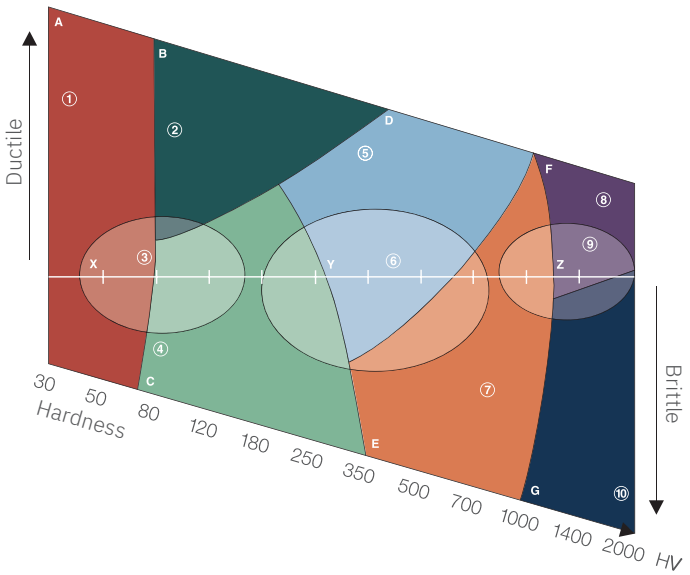
NonDry suspensions stay liquid

A METHOD FOR ANY MATERIAL

Optimize your process – minimize your waste

Are you looking for perfect results from your true structure? Or perhaps a few artifacts are acceptable as long as they do not disturb your analysis? No matter your preparation goal, we will help you optimize your grinding and polishing process – without over-processing. This means increasing the quality of your specimen up to your goal by eliminating artifacts such as deformation, edge rounding, scratches, and pull-outs, while minimizing process waste with fewer, shorter steps.

Find the optimal process for your material



Find the hardness of your material on the X-axis, then move up or down the Y-axis, depending on its ductility. Learn more and see optimized methods for your material at **Struers.com**

Take a systematic approach

Based on extensive academic training and hands-on experience, our materialographic experts have developed optimized methods for any material. Simply tell us your preparation goal, and we will customize our standard method to your equipment, requirements and operator capabilities, whether your focus is on quality, safety, speed, or efficiency.

A systematic approach is key to achieving accurate, repeatable results and makes troubleshooting easier. High quality consumables will also maximize your reproducibility. Our stringent in-house quality control ensures our consumables deliver the same performance every time to absorb sensitivity to changes in conditions.

500 +

predefined and proven methods for your polishing process

CHOOSE A PARTNER, NOT JUST A SUPPLIER

Maximize your uptime with consumables on delivery

Reduce your risk and keep inventory costs down with our robust global supply chain. For fast, reliable delivery, we have distribution centers across the U.S., Japan, China, Germany, and Denmark.

Our ISO 9001-certified LEAN production and strict quality control ensure all consumables perform as promised and contribute to a safer workplace. You can also minimize your environmental impact thanks to our ISO 14001 certification for environmental management and commitment to low-carbon shipping.

Get total support – whatever, whenever

Polishing is just one part of the story. There are Struers consumables and equipment for any stage in the process. These are designed to work together so you get the most out of your investment. And our materialographic experts will help you optimize your end-to-end process through Value Stream Mapping.

In fact, we are here to help you with every aspect of materialography. Whether you need to boost your skills with onsite and online training, or maximize your uptime with service and support, we offer a complete solution for ensuring certainty.

98% of consumables are shipped within

48 hrs

VERSATILE VERIFICATION

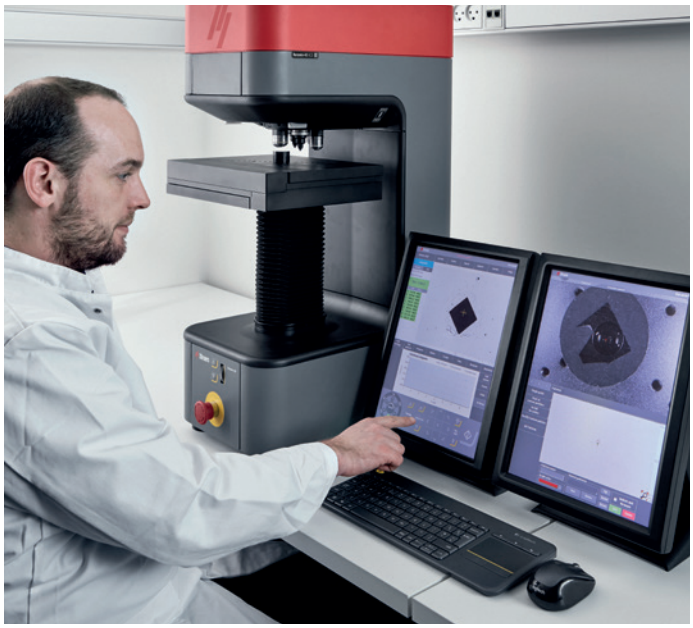
As you have seen, Struers can help you with a polishing solution to meet any preparation requirement. But did you know that we can also support your next step – verification?

Maximize your reproducibility – every step of the way

Whether you are performing etching, hardness testing, image analysis, or weld inspection, we can help you with fast, accurate, and repeatable verification.

Vickers, Knoop, Brinell, or Rockwell – our range of Duramin hardness testers covers all methods, and many of them cover more than one. For materialographic analysis, our high-resolution digital camera equipment and dedicated software ensure fast, simple, and accurate automated macro and micro testing.

In addition to precision-engineered equipment, we also provide insights, training, and practical expertise to help you ensure certainty in your verification process.



Explore our solutions and educational resources at Struers.com

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Ensuring certainty

Materialographic preparation and testing demands consistent, reproducible results. These come not only from your laboratory process, operators and equipment, but from your supply chain and your partner. As a Struers customer you benefit from high quality design and engineering of equipment and consumables, but just as much from our unique knowledge base, robust global supply chain, and expert service and applications support – where and when you need it. We call all this ensuring certainty

Struers remains dedicated to making the world a better place through the pursuit of deep scientific insights and ground-breaking technology. Today, we're your trusted partner in a fast-changing world, sharing our expertise and practical experience on a global scale. This gives you innovative solutions that help you face the future with confidence. We continue to lead the way in materialographic products and services, and to shape future developments towards a better society.

www.struers.com

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