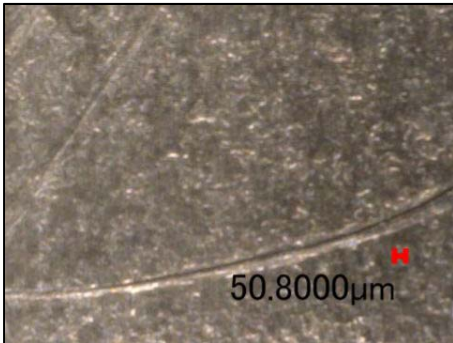# Coupon Finishes

Coupons can be finished using a variety of processes to meet your particular application. Some of the typical finishing processes are explained below.


Mill Finish – Coupon surfaces are provided in the as-received condition (as the material was received from the mill). After the coupons have been cut to size, no additional finishing is performed to improve the surface or to remove imperfections. This finish is typically used to simulate a "worst-case" condition. Coupons with a mill finish may have scratches, corrosion, and other defects upon receipt. It is important to note that Metal Samples provides mill-finish coupons as-is and accepts no responsibility for the condition of the surface.
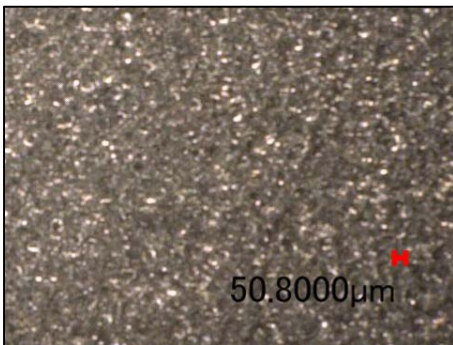

Glass Beaded – Coupon surfaces are blasted with fine glass beads to remove mill scale. This typically results in a finely textured surface with a typical surface roughness of approximately 50 µIn RA on steel coupons*. Glass beading should remove any mill scale and surface corrosion, but it may not remove all surface defects such as scratches. While not perfect, glass beaded coupons have a much better surface compared to a mill finish and provide more consistent surfaces. The glass beaded surface finish is very economical and is our most popular surface finish.
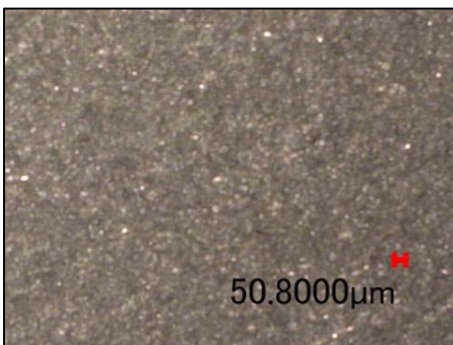

Coarse Grit Blasted – Coupon surfaces are grit blasted using a coarse media such as aluminum oxide to remove mill scale. This also results in a textured surface, but it is coarser than a glass beaded surface. Typical surface roughness will be 65-70 µIn RA on steel coupons*. Coarse grit blasting also removes mill scale and surface corrosion and does a better job of removing surface defects such as scratches compared to glass beading.
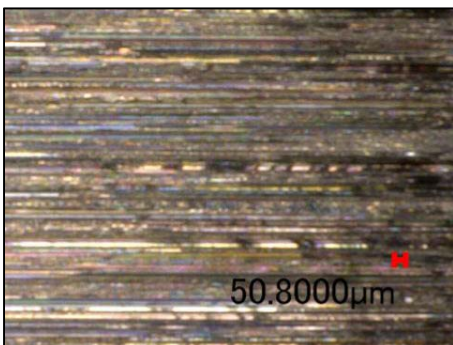
Sanded – Coupons are finished using a directional sanding process. A wide range of surface roughness can be achieved by using different grit sizes. A 120 grit belt is standard and is commonly used in corrosion tests. This results in a typical surface roughness of 125-130 µIn RA on steel coupons*. If a smoother surface finish is desired, finer belts such as 400 grit and 600 grit can be used. Sanded coupons will exhibit a linearly directional finish and may exhibit slight beveling along the edges.
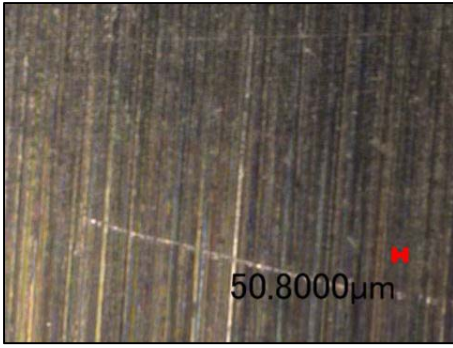
Double Disc Ground – Coupons are finished between two counter-rotating grinding stones, resulting in an extra-fine finish. This process is more expensive, but results in a superior, more repeatable surface finish compared to the other methods. Double Disc Ground coupons will exhibit swirled grinding marks on the faces and have a typical surface roughness of 35-40 µIn RA on steel coupons*. Finished surfaces should be free of contaminants and defects. This option is excellent for studies where surface finish or repeatability is critical.
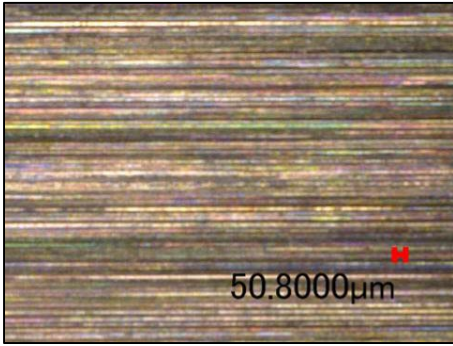
Lapped – Coupons are machine finished on a lapping plate using a lapping compound to produce a very flat and smooth surface. Lapping can achieve surface roughness as low as 3-5 µIn RA on carbon steel*. This method produces one of the best surface finishes but is more expensive than other methods, including grinding.

Surface roughness listed is for reference purposes only. Actual surface roughness will vary depending on the material and condition.

A note on surface finish

It is important to note that the items described above are finishing processes and not actual surface finishes. A true surface finish callout will specify the required surface roughness in a measurable unit such as RA or RMS. If coupons are ordered by a finishing process such as "120-grit sanded" then Metal Samples provides coupons finished using that process, but the actual surface roughness is not controlled. Coupons can be ordered with a specific surface roughness if that is required, in which case Metal Samples will select the appropriate method(s) to achieve the desired roughness.