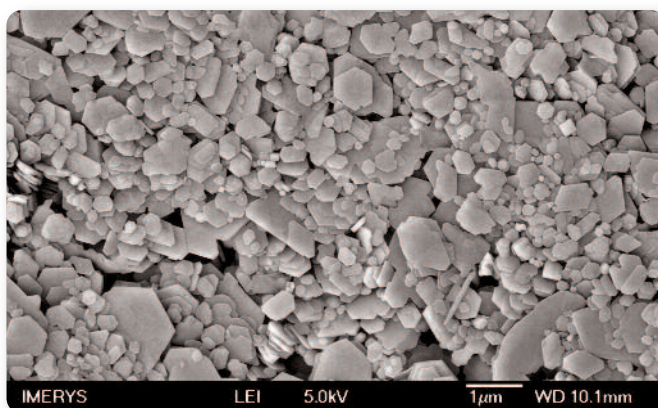


Capim™ DG Applications

The main attributes of Capim™ DG are brightness and steep particle size combined with good rheology. Its strongest fit is in heavier weight single coating such as North American Freesheet or European MWC. Its rheological characteristics also make this a good choice for metered size press applications.

Pigment	Capim™ DG
ISO Brightness	89
wt% <2µm	92
wt% <0.25µm	14
D ₅₀ µm	0.56
Shape Factor	15
Viscosity Concentration wt%	74
Applications	MWC/CFS
Launched	1996



Comparison with North American Engineered Kaolins

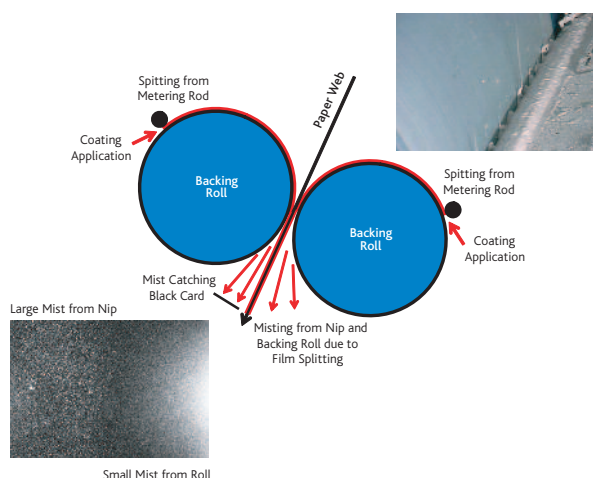
This example is taken from a North American #4 study in which Capim™ DG is compared against another 90 < 2µm engineered kaolin and against a finer 95 < 2 µm engineered grade. It can clearly be seen that Capim™ DG has much superior slurry rheology than the North American grades and also delivers improved optical performance on the paper. Gloss is somewhat lower than the finer US product, but this can be improved if the rheology benefits are used to maximise running solids.

	Slurry Solids	Colour Viscosity at 62% Hercules (dynes)	Gloss	B'Ness	Opacity	Print Gloss
US Engineered	67	31	52	75.6	86.6	65
US Fine Engineered	66	38	55	75.8	86.8	70
Capim™ DG	70	30	53	76.3	87.1	69

Capim™ DG Applications

Capim™ DG for Metered Size Press Applications

Metered size press application can be more forgiving for generating coverage in light weight applications than blade coating, but can be more challenging in terms of runnability, especially at high speeds where the running window between misting and rod spitting can often be small.



The rheological characteristics of Capim™ DG facilitate running at high solids with low rod pressures. This gives benefits in terms of misting. Indeed Capim™ DG is used commercially in LWC on machines running > 1800m/min.

	Fine #1	Fine Platy	Capim™ DG	UK Coating
Solids wt%	63.5	62.5	63.4	62.9
Rod Pressure bar	2.5	2.9	2.5	2.9
Gloss	53	55	54	55
UV Brightness	77.1	77.7	79.0	78.2
Opacity	94.1	94.3	94.2	94.5
Print Gloss	56	62	60	62

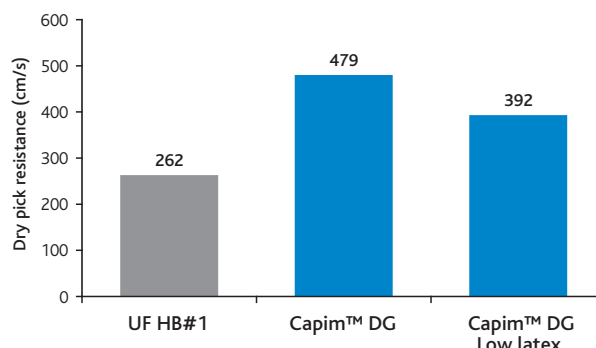
Paper properties are also good with Capim™ DG. The above example shows Capim™ DG performance in an MSP LWC recipe containing 80 parts carbonate. Runnability at 1800m/min and paper brightness are excellent.

Capim™ DG for Top-coating

Capim™ DG can deliver optical benefits, increased bulk and improved mottle performance against conventional glossing kaolins when used in topcoat recipes.

These benefits in bulk and optics can enable gloss to be optimised through calendering. We would recommend using increased temperature ahead of higher pressure, higher moisture and slower speed as this has less impact on stiffness and throughput. Changes to co-binder should also be assessed if this helps to maximise solids

The lower intrinsic gloss potential of Capim™ DG is an advantage in matt and silk applications, so Capim™ DG could be considered a multi-purpose pigment for woodfree top-coating. Likewise Capim™ DG can deliver coverage benefits compared to fine glossing kaolins in single coating, so if the mill also makes LWC woodfree paper, (as in many Asian mills) Capim™ DG can again be a good multi-purpose kaolin solution.



The low level of ultrafine particles and low surface area of Capim™ DG can also pay dividends in terms of coating strength. This can enable binder reduction compared to fine glossing kaolins or give improved glue-ability in board and packaging applications.

Summary - Capim™ DG

Target Segment/ Application	Key Attributes
LWC	Brightness, Rheology, MSP runnability, Gloss
MWC/CFS	Excellent scatter and rheology with good gloss. Replacement of Opacifiers in Freesheet
Topcoat CWF	Brightness, reduced mottle, multipurpose for gloss, Silk matt and single coat
B&P	Brightness, reduced mottle, glue-ability