

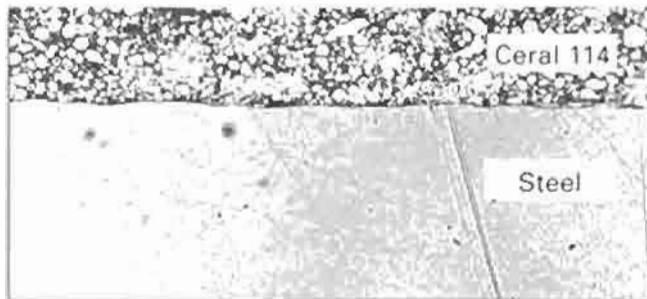
# CERAL 114

Corrosion protection by Aluminum

  
**morant**



## Ceral 114 coating – a metal-ceramic coating



- Ceral 114 is a silver-grey coating consisting of a ceramic matrix with embedded aluminum powder as the pigment.
- Despite the ceramic matrix, Ceral 114 is elastic in comparison with other organic paint coatings.

## Ceral 114 coating process – a painting process

- Ceral 114 is applied by spraying in the same manner as an organic paint.
- To obtain the ceramic matrix, the coating must be stoved at 320° C after spraying.
- It can be applied in several layers with a thickness of 30–60 µm per layer.



## Ceral 114 systems – tailored corrosion protective systems

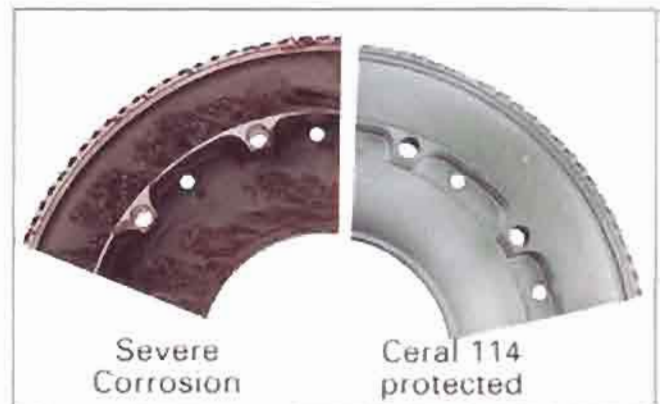
- The corrosion-inhibiting properties of Ceral 114 can be enhanced by post-treatments.
- Peening or heat treatment at 560° C consolidates the aluminum particles, making the aluminum coating electrically conductive.
- Corrosion inhibition can be increased still further by applying a sealant (Ceral 350/1).

System	conductive	assessment*
Ceral 114/320° C	-	25
Ceral 114/320° C + Seal Coat/320° C	-	30
Ceral 114/320° C + Peened	+	75
Ceral 114/320° C + Peened + Seal Coat/320° C	+	100
Ceral 114/560° C	+	100

\* Relative assessment against standard = 100 for Ceral 114/560° C

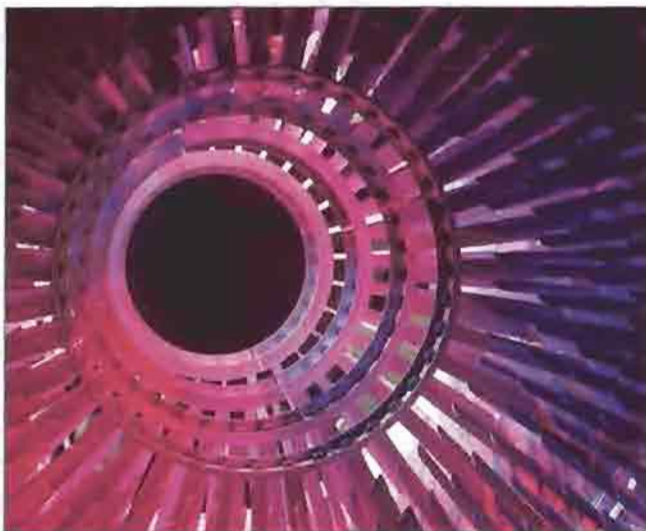
## Ceral 114 properties – outstanding corrosion protection

- Electrical conductivity additionally provides “cathodic protection”, meaning that if the coating becomes damaged, the aluminum is “sacrificed”, leaving the component unharmed.
- Ceral 114 is suitable for temperatures up to 650° C.
- Roughness values of Ra 0.4–0.6 µm can be achieved.



- Because Ceral 114 contains aluminum it provides outstanding protection against corrosion.

## Ceral 114 applications – parts with severe corrosion



- Ceral 114 is suitable for all “paintable” components susceptible to corrosion (e.g. compressor in aeroengines exhaust-system components, nuclear and chemical industry parts, parts exposed to sea).
- The strength of highly-stressed components, such as compressor disks, remains unimpaired.
- Ceral 114 is not dissolved by organic solvents and can be used with fuels, oils and greases.

- Ceral 114 was developed for corrosion inhibition with critical compressor components in aero-engines.

## Ceral 114 environmental acceptability – low Cr<sup>6+</sup> content

- Ceral 114 contains chromic acid, a necessary constituent of all such coatings, but in such small quantity (< 0.5%) that special protective measures are not required.

Cr<sup>6+</sup> content in paint < 0.5%  
Cr<sup>6+</sup> concentration in breathing air  
< 0.003 mg/m<sup>3</sup>

*Ceral 114 is approved by Pratt & Whitney, Rolls-Royce, General Electric, SNECMA, MTU.*

# CERAL 114

## Technical data of paint

Viscosity	14 – 15 sec
Density	1.62 – 1.64
pH	2.0 – 2.2
Cr <sup>6+</sup>	0.5% Weight
Granularity	NS-5
Stoving Temperature	320° C/30 Min
Shelf Life	6 Months

## Coating properties

Thickness	20 – 100 µm
Roughness (AA)	0.4 – 0.6 µm
Temperature Resistance	650° C
Salt Spray ASTM B117	>1000 hr (conductive)
16 hr Salt Spray / 6 hr 450° C	> 10 Cycles
Corrosion Potential (NaCl)	-750 mV (vs Ag/AgCl)
Solvent Resistance	Water, Organic Solvents, Oil, Fuel

For service within North America, please contact:

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