### Concepts for Drying, Debinding, Thermal Cleaning and Wax Burnout

<table>
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<tr>
<th>Process</th>
<th>Drying Solvents</th>
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<td><strong>Atmosphere</strong></td>
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<tr>
<td>Air</td>
<td>Inert</td>
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<tr>
<td><strong>Maximum Temperature for Debinding</strong></td>
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<tr>
<td>300 °C</td>
<td>450 °C</td>
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<tr>
<td><strong>Organic Quantity</strong></td>
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<tr>
<td>Organic quantity low</td>
<td>Organic quantity low</td>
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<tr>
<td><strong>Requirement</strong></td>
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<td>Low requirement for temperature uniformity</td>
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<td><strong>Concept</strong></td>
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<td>LS</td>
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- **Furnace Type**
  - **For Debinding**
    - TR .. LS, page 20
  - **For Debinding and Sintering**
    - KTR, page 22
    - NA .. LS, page 18
    - NAC, page 17
    - NA .. 45 DB10, page 18

**Post-Treatment of Exhaust Gases**

**Furnace Heating**

- Gas

1) Air
2) Protective gas
Debinding

Organic quantity low
Low requirement for temperature uniformity
DB60

Organic quantity low to high
DB100

Organic quantity high
DB200

Thermal debinding in inert atmosphere. Monitored safe inert gas purging.

BO

Thermal debinding or pyrolysis in an inert atmosphere. Safe monitored inert gas purging.

IDO

Catalytic debinding in nitrogen/nitric acid atmosphere. Monitored safe Nitrogen purging to displace the oxygen.

HNO3

Thermal afterburning or pyrolysis in an inert atmosphere. Safe monitored inert gas purging.

H2

Catalytic afterburning

Debinding process with control difficulties of heating ramp (exothermic reactions). Safe ignition of ignitable mixtures.

N .. BO, page 29

W .. BO, page 42

VHT .. BO, page 62

NB .. CL, page 28

Thermal afterburning

Safe ignition of ignitable mixtures.

Low oxygen concentration. Prevention of open incineration.

WAX

Flame

Thermal afterburning

Flare