**Technical Datasheet**

# BECE DEGRAETCH 2084

**Microetching- and Degreasingsolution**

## 1. Description:

**BECE DEGRAETCH 2084** is an acidic cleaner, which was developed especially for the pre-cleaning of printed circuit boards or copper surfaces. The acidic cleaner combines two process steps, the degreasing and the microetching of the copper in an exceptionally good manner.
Two work steps are replaced by one, which has a positive effect on the machine costs, the processing times and the work times as well as on the rinsing water volumes and therefore on the total costs.

**BECE DEGRAETCH 2084** is based on sulfuric acid and additionally stabilized hydrogen peroxide. A significantly slowed-down decomposition of the peroxide takes place due to the special stabilization of the hydrogen peroxide, which means that the catalysis itself is slowed down, e.g. due to aluminum basic materials.

**BECE DEGRAETCH 2084** is at the same time characterized by controlled and uniform copper etching rates of 0.2 - 1.40 µm as well as by a high copper absorbability of 40 g/l.

Thin oxide layers and handling contaminations, such as fingerprints, will be removed effectively by adding appropriately stable non-ionic surfactants.

Due to an additional additive, the cleaner **BECE DEGRAETCH 2084** has the characteristics to undercut and separate possible "bled" soldermask residues on the copper pads. In combination with the reduced surface tension of the cleaner, it results in outstanding wetting characteristics in the downstream hot-air-levelling. In general, the **BECE DEGRAETCH 2084** cleaner can be utilized outstandingly for the pre-cleaning of final surfaces, plated-through holes, conductive pattern plating or for any application where clean copper surfaces must be available.

**BECE DEGRAETCH 2084** should be used in horizontal spray systems at temperatures >30°C, however, it can also be used as a bath cleaner in vertical systems.

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## 2. Characteristics/benefits:

- 2 in 1: Combination product providing microetching- and degreasing solution.
- Removes inorganic as well as organic contaminations.
- Creates a very active copper surface while removes at the same time little copper, which results in outstanding wetting characteristics.
- Additionally stabilized hydrogen peroxide, which means significantly slowed down decomposition of the hydrogen peroxide, even for an aluminum catalysis.
- Simple and easy handling as well as supplementation.

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## 3. Machine equipment:

The machine parts that must get in contact with **BECE DEGRAETCH 2084** should consist of the following materials:

- **Bath container:** PVC, PE, PP; stainless steel AISI 304 or AISI 316
- **Seals:** Viton
- **Heating:** Heaters made of Teflon or quartz glass
- **Cooling:** Heat exchanger made of Teflon or PVC cooler (the etching reaction is slightly exothermal)
- **Exhaust unit:** An exhaust unit is required
- **Bath motion:** Spraying across series of spray nozzles (preferred work application). Swell or flooding with air injection; a good bath and heat exchange is required for a uniform copper attack.

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## 4. Bath- and work parameters:

| | | | |
|---|---|---|---|
| • | Work temperature: | 30-45°C | optimal: 40°C |
| • | Contact time: | Spraying: | 20 - 30 seconds |
| | | Dip: | 60 seconds |
| • | Max. copper absorption: | 40-45 g/l | optimal: 40g/l |

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## 5. Form of delivery, bath make-up and replenishment

- **Delivery form:** **BECE DEGRAETCH 2084** will delivered as ready to use solution.
- **Bath make-up:** 100%; always used undiluted.
- **Replenishment:** Replenish with **BECE DEGRAETCH 2084** undiluted.
  Only drag-out losses are normally compensated by adding the ready to use solution.
  However, if printed circuit boards with a high copper share are etched, then the replenishment will normally be added through the copper content or in accordance with $m^2$.

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- **Nominal values:**

| | | |
|---|---|---|
| | Hydrogen peroxide 35% | minimum 28.0 ml/l |
| | Sulfuric acid 96% | minimum 48.0 ml/l |
| | Copper: | recommended 40 g/l |

- **Analysis methods:**
  AVK-021 ($H_2O_2$ 35%)
  AVK-014 ($H_2SO_4$ 96%)
  AVK-015 (Cu)

- **Lifetime:**
  Periodic new preparations are normally not required.
  The recommended copper content should not be exceeded to prevent sedimentation of cuprous salts. If this is the case, then a new make-up must be created.

## 6. Physical characteristics:

| | |
|---|---|
| Form: | liquid |
| Color: | yellowish |
| pH-value: | app. 1 |
| Density: | app. 1.13 g/cm³ |
| Storage temperature: | > 5°C |

## 7. Packing and storage:

- 20L canister
- 200L barrel
- 1000L IBC

- Storage only in original containers.
- Keep container always closed

## 8. Safety instructions:

Detailed safety instructions can be found in our safety data sheet, which can be requested through sicherheitsdatenblatt@bece-chemie.de.

## 9. Disposal:

We recommend to dilute the solutions 1:1 or higher with water for the disposal/detoxification of process and rinse water. A 10% $NaHSO_3$ solution (sodium hydrosulfide) will be added while stirring to reduce and remove the hydrogen peroxide. Afterwards, the pH value will be set to 10.5 and the copper hydroxide sludge will be separated by adding flocculation agents. The neutralization can be achieved by adding lime milk.

Before you follow these recommendations, check the respective local legal regulations for waste removal. The legal regulations have precedence if they deviate from our recommendations.

**Note:**
This data sheet is provides information and was established based on our current state of knowledge. However, we can only accept the liability for the flawless quality of the products at the time of delivery since we do not have any influence over the approved use of our products. We are pleased to offer consultations by our technical customer service if you encounter problems when using our products.

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