

## Examiners' Report – Paper B (Chemistry)

### 1. Claims (maximum: 45 points)

The expected independent claims were directed to:

- a: Precipitated silica in the form of beads having a mean diameter less than or equal to 500 nm, a BET surface area from 250 to 350 m<sup>2</sup>/g, and a DOP oil absorption from 300 to 400 ml/100g.
- b: Process for preparing beads of precipitated silica, involving the reaction of a solution containing one or more silicates with an acidifying agent to produce a precipitated silica suspension, then separating and drying the silica, wherein the reaction is achieved as follows:
- an aqueous solution of one or more silicates containing the total amount of the silicate to be employed in the reaction is placed in a reactor, the silicate concentration in said reactor being less than 80 g/l expressed in g SiO<sub>2</sub> per litre,
  - the acidifying agent is added to the said reactor until a pH of from 5.0 to 7 is reached,
  - the reaction is carried out with agitation and is stopped when silica beads with
    - a mean diameter of less than or equal to 500 nm,
    - a BET specific surface area ranging from 250 to 350 m<sup>2</sup>/g are obtained.
- c: Rubber composition comprising a silica according to claim 1.
- d: Tyre comprising the composition according to claim 3.
- e: Use of a precipitated silica according to claim 1 as a reinforcing filler in the manufacture of a tyre tread for improving the adherence of said tyre on snow-covered ground.

It was not necessary to formulate the claim to the catalyst as a product by process claim. Candidates who did so gained fewer marks.

Very few marks were awarded for dependent claims and thus candidates who drafted a large number of dependent claims were not making effective use of the time available.

Claims restricted to individual values of parameters such as BET surface area, DOP, pH, reaction time or reaction temperature were deemed to be too narrow in scope and gained no marks.

Candidates who presented independent claims which were clearly not allowable could not rely on the presence of the expected subject-matter in a dependent claim to remedy this defect.

It was evident from page 4, lines 2 to 5 of the English version of the paper that the reaction had to be stopped when a silica having the desired BET surface area and DOP values was obtained. Marks were deducted if this was not reflected in process claim 2 and no marks were awarded if a reference to a BET-value and/or a DOP-value was missing. Marks were also lost if the pH range was unnecessarily restricted (e.g. excluding the value of 7); see paragraph 2.2 below.

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## 2. Arguments (maximum: 55 points)

A good answer included

- 2.1 The basis for all the amended claims under Art. 123 (2) EPC including arguments on the admissibility of the amendments.
- 2.2 Arguments on novelty in view of documents D1 and D2. The candidates were expected to explain in detail why the silicas described in the prior art did not either explicitly or implicitly exhibit the BET surface areas and DOP oil absorptions of claim 1. The combination of reaction conditions disclosed in document D1 did not result in silicas with the required BET and DOP-values. This was shown in examples 1 and 2 of D1 which correspond to examples 4 and 3 of the present application.
- 2.3 The candidates were also expected to provide arguments for the novelty of the process claim. Candidates who had shown that the product itself is novel could argue that a process which makes a novel product must be novel. Candidates who had realised that the reaction had to be stopped once the silica had the desired BET surface areas had no difficulty in arguing that the prior art did not disclose the combination of the pH range and the stopping of the reaction. Other candidates derived the novelty of the process claim only from a selection of the pH range of from 5.0 to 7 from the range given in D1 (i.e. less than or equal to 7) and presented the criteria indicated in decision T 279/89. This was not convincing, since the pH value of 7 was disclosed in document D1.
- 2.3 The candidates were expected to use the “problem and solution approach” (see the Guidelines C-IV, 9.4) as the basis for their arguments on inventive step. The problem solved was the provision of silicas, (and a process for making these silicas) which enable tyres to be produced, which have an improved adhesion on snow covered ground (see Table III: Example 5 and 6 (according to the invention) as compared to examples 7 and 8 (comparative)).  
The arguments were expected to be consistent with the claims presented.
- 2.4 Arguments on clarity and on unity of invention were not necessary in this case.

**EXAMINATION COMMITTEE I**

Candidate No. ....

Paper B (Chemistry) 2003 - Schedule of marks

Category	Maximum Possible	Marks awarded	
		Marker	Marker
Claims	45		
Argumentation	55		
Total	100		

Sub-Committee for Chemistry agrees on ..... marks and recommends the following grade to the Examination Board:

PASS  
(50-100)

FAIL  
(0-49)  
COMPENSABLE FAIL  
(45-49, in case the candidate sits  
the examination for the first time)

Vienna, 22 August 2003

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Chairman of Examination Committee I