

#### 4.B AIMS OF THE ANALYTICAL PROGRAMME

The selection of the specimens studied with archaeometric methods was based on the morphological and macroscopic characteristics of the ceramic repertoire presented in this volume. In more detail, it was aimed to include a wide range of vessel shapes in the petrographic study as well as ceramic material from the Archaic kiln, possibly allowing the reconstruction of a compositional fingerprint for local productions. For few of the analysed samples, prior to thin-section analyses their fabrics had been compared under low magnification to samples of known provenance, as determined by NAA analyses<sup>1628</sup>, by A. von Miller. It needs to be stressed that deliberately a considerable quantity of coarse wares had been incorporated in the petrographic study, as these – due to the coarseness of their mineral and rock constituents – best reflect the nature of the geological environment they originate from. Following, the statistical data presented (cf. e.g. diagram 101) does not represent all ceramics discussed in this volume, but accounts exclusively for the thin-sectioned samples. Nonetheless, the gained data can be considered as a representative 'cross-section' for the overall ceramic assemblage.

All ceramic thin-sections were studied with a Zeiss AxioLab A1 polarising light microscope at the Austrian Archaeological Institute in Vienna and subsequently arranged in petrographic groups referring to their mineral and rock constituents, considering the natural and technological variation of their composition. The focus of archaeometric analyses was to contribute to several major archaeological questions being connected to aspects of ceramic provenance and vessel functionality, as follows:

- Can ceramics, which typologically have been linked to Ephesian potteries, indeed be identified as local products? Which shape repertoire has been manufactured locally and what kind of clay recipes have been employed in their production process? Is it possible to correlate specific vessel shapes with the utilisation of particular clay pastes, possibly being related to the functional aspects of the pots?
- How distinctive are the presumed local ceramics by compositional means, particularly regarding the fine wares?
- How reliable are the vessels recovered from the Archaic kiln for generating reference groups? Can the petrographic evidence aid in the reconstruction of the organisation of production in the Geometric and Archaic periods?
- Which vessels can definitely be classified as imported wares? Is it, for example, possible to differentiate Lydianising or orientalisising shapes on the basis of their petrographic fingerprint? To which extent is heterogeneity observable for the mortaria? Do the petrographic results support their typological assignation as »Cypriot«, »Corinthian« and »East Greek reproductions of Cypriot prototypes«?
- Can diachronic developments in Ephesian ceramic production be noticed and how do these observations contribute to socio-cultural interpretation? Is the employment of particular clay pastes influenced by the availability of raw materials, the technological choices of the craftsmen or societal/functional needs?

On the basis of the character of inclusions respective of their grain sizes and abundance, 22 petrographic fabric groups (henceforth petrofabrics) have been noticed, a considerable amount of them being compositionally highly distinctive. Several of the defined petrofabrics can be geologically related to each other, pointing towards their origin from a similar geological and thus, often identical, geographical region. Methodologically, the petrofabrics have been attributed to proposed locations of origin by comparison with published petrographic studies from Western Asia Minor and beyond, also incorporating data of prehistoric and Hellenistic-Roman ceramics linked to production in this region. Geological literature on relevant rock formations and bedrock,

<sup>1628</sup> Most significantly, Akurgal et al. 2002. For a comprehensive discussion of the determined NAA groups and their provenance indications see chap. 2.B.3.1.1.