

RATES

This document presents the services offered by the CENIEH as an ICTS to researchers and companies, with their corresponding rates. Only the services defined are mentioned below: the Center also possesses capabilities for other methodologies to be commissioned and scientific-technical consultancy work.

General conditions:

- The procedure for requesting the services shall be through the User Office at the link: <https://www.cenieh.es/infraestructura/acceso-y-oficina-de-usuario>
- The commissioning of procedures, processes or methodologies shall be invoiced for on the basis of the cost of each of the techniques. - The minimum charge for the different techniques which are charged per hour shall be equivalent to one hour, or the fraction indicated in the rate.
- Any tests which fail as a consequence of malfunctioning of the analytical instrumentation of the ICTS shall not be chargeable.
- When standards not available in the laboratories are needed, the cost of those standards will be added to the price of the service, subject to the prior agreement of the requester.
- Laboratories or services not envisaged in the following rates and services can be engaged and charged for on the basis of a prior agreement on price.
- The equipment denoted (LUC) may be used in the “qualified user” mode subject to inclusion of the user in the LUC (List of Qualified Users), and reception of the appropriate instructions or training.
- All the rates are for guidance only, and the prices may undergo modification, depending on the number of samples and their specific characteristics. Please request an estimate for each analysis and test and, in any case, for services not included in the tables below.

Application of Rates for the Competitive and On-Demand Access Modes

Competitive Access Mode

The applications made to laboratories with Competitive Access Mode by means of Competitive Calls, and following resolution, will be assigned as priority 1 or priority 2, and will be executed during the period established in the call, with **Rate A** being applied in all cases, whether they are for members of the CENIEH, or public or private bodies.

The applications made to laboratories with Competitive Access Mode but by means of On-Demand Access shall be charged at:

- **Rate B** for members of the CENIEH and for work arising from their research activity, whether as researchers on an internal project or as co-researchers on a project based at another research center or university.
- **Rate C** for public institutions such as universities, public research bodies (OPIs) or private bodies and companies.

On-Demand Access Mode

The applications made to laboratories with exclusive On-Demand Access mode shall be charged at Rate A, B or C, depending on the kind of requesting institution, determined in general as follows:

- **Rate A:** applicable to members of the CENIEH and for work arising from their research activity, whether as researchers on an internal project or as co-researchers on a project based at another research center or university
- **Rate B:** applicable to public institutions such as universities and public research bodies (OPIs) and other public bodies.
- **Rate C:** applicable to any class of work destined for and/or for the purposes of companies or private bodies.

Access Mode established for Laboratories 2020	
Laboratories with Competitive Access Mode	Laboratories with On-Demand Access Mode
<ul style="list-style-type: none"> - Micro-Computed Tomography Area of the Microscopy and Micro-Computed Tomography Laboratory - Geochronology laboratories: <ul style="list-style-type: none"> o Archaeomagnetism o Luminescence o Electron Spin Resonance 	Geochronology Laboratories: <ul style="list-style-type: none"> - Uranium Series
	Geology Laboratories: <ul style="list-style-type: none"> - Sample Preparation - Thin Sections
	Archaeometry Laboratory
	Digital Mapping and Multimedia Laboratory
	Experimental Archaeology Laboratory
	Bioenergy Laboratory
	Conservation and Restoration Laboratory

- The Rates applicable are:

Rate A: these are prices charged to members of the CENIEH, for work related to their research activity, whether as researchers on an internal project or as co-researchers on a project based at another research center or university.

Rate B: this is applicable to public institutions such as universities and public research bodies (OPIs). It is understood that reciprocity will be applied, so that should the CENIEH need some service from an organization charged at the B rate, the same price considerations shall be applied to the Center. Rate B is obtained by multiplying rate A by a factor of 1.5.

Rate C: this shall be applied to any work whose result is destined for and/or serves the ends of companies and private bodies. Rate C is obtained by multiplying rate A by a factor of 2.

- Should the complete provision of the service requested require the CENIEH to subcontract part of the work, the cost of this subcontracting, with a surcharge of 10%, will be charged as an extra.

- These prices are subject to the current rates of VAT.

ARCHAEOMETRY LABORATORY

FIELDWORK	Rate A	Rate B	Rate C
Taking samples (€/person-day)	250	375	500
X-RAY DIFFRACTION	Rate A	Rate B	Rate C
Sample preparation DRX-grinding (€/unit)	2	3	4
Sample preparation DRX-milling (€/unit)	2	3	4
Sample preparation DRX-mortar (€/unit)	3	4.5	6
Preparation of samples for Oriented Aggregates (€/unit)	40	60	80
Preparation tablet 13 mm (€/unit)	3	4.5	6
X-ray diffraction (€/hour)	5	7.5	10
Multipurpose platform diffraction (€/hour)	5	7.5	10
Identification of phases (€/unit)	15	22.5	30
X-RAY FLUORESCENCE	Rate A	Rate B	Rate C
Sample preparation FRX-grinding (€/unit)	2	3	4
Sample preparation FRX-milling (€/unit)	2	3	4
Preparation tablet 13 mm (€/unit)	3	4.5	6
Preparation tablet 40 mm (€/unit)	4	6	8
Preparation glass bead (€/unit)	7	10.5	14
Semi-quantitative analysis (€/unit)	9	13.5	18
Quantitative analysis (€/unit)	12	18	24
Calculation of LOI (€/unit)	5	7.5	10
INFRARED SPECTROSCOPY (FTIR)	Rate A	Rate B	Rate C
Sample preparation FTIR-grinding (€/unit)	2	3	4
Sample preparation FTIR-milling (€/unit)	2	3	4
Preparation tablet 13 mm (€/unit)	3	4.5	6
ATR/transmission (€/unit)	2	3	4
Use of instrument (€/hour)	5	7.5	10
RAMAN MICROSCOPY	Rate A	Rate B	Rate C
Use of instrument (€/hour)	5	7.5	10
THERMOGRAVIMETRY (TG/DSC)	Rate A	Rate B	Rate C
Sample preparation TG/DSC-grinding (€/unit)	2	3	4
Sample preparation TG/DSC-milling (€/unit)	2	3	4
Use of instrument (€/hour)	10	15	20
THERMOGRAVIMETRY (TG/DSC)+FTIR	Rate A	Rate B	Rate C
Sample preparation TG/DSC-grinding (€/unit)	2	3	4
Sample preparation TG/DSC-milling (€/unit)	2	3	4
Preparation tablet 13 mm (€/unit)	3	4.5	6
Use of instrument TG+DSC+FTIR (€/hour)	15	22.5	30
SCIENTIFIC-TECHNICAL REPORT	Rate A	Rate B	Rate C
Scientific-Technical Report (€/day)	95	142.5	190
Scientific-Technical Report (€/hour)	45	67.5	90

MICROSCOPY AND MICRO-COMPUTED TOMOGRAPHY LABORATORY

MICRO-COMPUTED TOMOGRAPHY	Rate A	Rate B	Rate C
Sample preparation (€/hour)	8	12	16
Establishment of parameters 240 kV (€/hour)	35	60	100
Use of scanner 240 kV (€/hour)	35	60	100
Establishment of parameters 180 kV (€/hour)	45	75	120
Use of scanner 180 kV (€/hour)	45	75	120
Preparing scans:			
- Between 1 and 5 (€/unit)	7	12	20
- Between 6 and 15 (€/unit)	6	11	19
- More than 15 (€/unit)	5	10	18
Image analysis (€/hour)	30	45	60
Training (€/hour)	30	45	60
AUTOMATIC MICROSCOPY MORPHOLOGIC G3	Rate A	Rate B	Rate C
Use of Morphologic G3 (€/hour)	10	15	20
Use of the software (€/hour)	10	15	20
ELECTRON MICROSCOPY	Rate A	Rate B	Rate C
Sample preparation (€/hour)	8	12	16
Use of SEM (€/hour)	15	22.5	30
Use EDS/WDS (€/hour)	17	25.5	34
Coating with Au (€/sample)	15	22.5	30
Coating with C (€/sample)	10	15	20
Training (€/hour)	15	22.5	30
3D DIGITAL MICROSCOPY	Rate A	Rate B	Rate C
Use of 3D Digital Microscopy	10	15	20
CONFOCAL LASER MICROSCOPY	Rate A	Rate B	Rate C
Use of Confocal Laser Microscope (€/hour)	10	15	20
OPTICAL MICROSCOPY	Rate A	Rate B	Rate C
Sample preparation (€/hour)	8	12	16
Petrographic analysis (€/hour)	3	4.5	6
Metallographic analysis (€/hour)	3	4.5	6
Fluorescence analysis (€/hour)	8	12	16
SCIENTIFIC-TECHNICAL REPORT	Rate A	Rate B	Rate C
Scientific-Technical Report (€/day)	95	142.5	190
Scientific-Technical Report (€/hour)	45	67.5	90

GEOLOGY LABORATORY

SAMPLE PREPARATION	Rate A	Rate B	Rate C
Rock cutting wet/dry (€/hour)	5	7.5	10
Jaw crushing (€/hour)	5	7.5	10
Vibratory disc/ball mill (€/hour)	5	7.5	10
Screening wet/dry (€/hour)	8	12	16
Magnetic separator (€/hour)	30	45	60
Microwave oven digestion (€/unit)	9	13.5	18
GRANULOMETRY	Rate A	Rate B	Rate C
Mineral separation and screening by grain size (PE-05GE) (€/unit)	10	15	20
Beckman Coulter laser granulometric analysis (€/hour)	50	75	100
CHEMICAL ASSAYS	Rate A	Rate B	Rate C
Petron calcimetry (€/unit)	12	18	24
Determination of humidity by desiccation and gravimetry (€/unit)	5	7.5	10
Determination of organic matter by ignition (€/unit)	8	12	16
Electrical conductivity and pH (€/unit)	5	7.5	10
THIN SECTIONS AND PROBES	Rate A	Rate B	Rate C
Consolidation (€/unit)	7	10.5	14
Standard thin section (LDS)			
polished (€/unit)	12	18	21
without cover (€/unit)	8	12	16
with cover (€/unit)	9	13.5	18
Medium thin section (LDM)			
polished (€/unit)	17	25.5	34
without cover (€/unit)	12	18	24
with cover (€/unit)	13	19.5	26
Large thin section (LDG)			
polished (€/unit)	20	30	40
without cover (€/unit)	14	21	28
with cover (€/unit)	15	22.5	30
SOIL MICROMORPHOLOGY THIN SECTIONS	Rate A	Rate B	Rate C
Standard impregnation* (€/unit)	25	37.5	50
Soil micromorphology thin sections (€/unit)	25	37.5	50
SCIENTIFIC-TECHNICAL REPORT	Rate A	Rate B	Rate C
Scientific-Technical Report (€/day)	95	142.5	190
Scientific-Technical Report (€/hour)	45	67.5	90

*Standard impregnation refers to a certain standard size of impregnation cuvette, and the units will be the number of these necessary, or equivalent volume.

GEOCHRONOLOGY: ARCHAEOMAGNETISM

FIELDWORK	Rate A	Rate B	Rate C
Taking samples (€/person-day)	250	375	500
SAMPLE PREPARATION	Rate A	Rate B	Rate C
Sample cutting (hours)+ marking-(€/hour)	5	7.5	10
VSM-ambient temperature (qualified user)	Rate A	Rate B	Rate C
VSM (€/hour)	1.5	2.25	3
VSM (€/day)	15	22.5	30
HYSTERESIS LOOPS	Rate A	Rate B	Rate C
Hysteresis loops (ambient temperature) - (€/hour)	2	3	4
Hysteresis loops (high temperature) - (€/hour)	On request		
Hysteresis loops (low temperature*) - (€/hour)	On request		
ISOTHERMAL REMANENT MAGNETIZATION (IRM)	Rate A	Rate B	Rate C
IRM and AIRM using VSM- (€/hour)	2	3	4
IRM magnetic pulses -(€/Unidad)	2	3	4
AIRM- IRM Anisotropy-(€/Unidad)	2	3	4
FORC	Rate A	Rate B	Rate C
Use of equipment at ambient temperature - (€/hour)	2	3	4
Use of equipment at low temperature* - (€/hour)	On request		
ANHYSTERETIC REMANENT MAGNETIZATION (ARM)	Rate A	Rate B	Rate C
ARM - (€/unit)	2	3	4
AARM- (€/unit)	2	3	4
AF/TH DEMAGNETIZATION	Rate A	Rate B	Rate C
AF/TH - (€/unit)	4	6	8
ANISOTROPY OF MAGNETIC SUSCEPTIBILITY (ASM)	Rate A	Rate B	Rate C
ASM- (€/hour)	7	10.5	14
USE OF LABORATORY (day)	Rate A	Rate B	Rate C
Use of laboratory - (€/day)	150	225	300
SCIENTIFIC-TECHNICAL REPORT	Rate A	Rate B	Rate C
Scientific-Technical Report (€/day)	95	142.5	190
Scientific-Technical Report (€/hour)	45	67.5	90

*In the case of measurements at low temperature, the price/hour may be affected by the cost and availability of liquid He at the moment of measurement, so that this should be confirmed before undertaking the tests.

GEOCHRONOLOGY: ELECTRON SPIN RESONANCE

FIELDWORK	Rate A	Rate B	Rate C
Taking samples (€/person-day)	250	375	500
HIRE SPECTROMETRY EQUIPMENT	Rate A	Rate B	Rate C
No. of days of use of the equipment	50	75	100
GAMMA AND BETA DOSIMETRY	Rate A	Rate B	Rate C
Sample preparation gamma dosimetry (€/sample)	18	27	36
Measurement gamma dosimetry (€/sample)	18	27	36
DATING OF QUARTZ	Rate A	Rate B	Rate C
No. of samples with separation of quartzes (€/sample)	180	270	360
Gamma spectrometry, irradiation and bleaching (€/sample)	69	130.5	138
ESR measurement, analysis of results and calculation of age (€/sample)	151	226.5	302
DATING OF TEETH	Rate A	Rate B	Rate C
No. of samples with separation of tissues (€/sample)	200	300	400
Gamma spectrometry, irradiation (€/sample)	50	75	100
ESR chemical preparation and measurement, analysis of results and calculation of age (€/sample)	350	525	700
GAMMA IRRADIATION	Rate A	Rate B	Rate C
Irradiation vials	0.2	0.3	0.4
Band I: Less than 30 sample-doses per KGy	1.5	2.25	3
Band II: More than 30 sample-doses per KGy	0.65	1	1.3
Preparation of vials by the user	0.2	0.3	0.4
Preparation of vials by the laboratory	1.2	1.8	2.4
SCIENTIFIC-TECHNICAL REPORT	Rate A	Rate B	Rate C
Scientific-Technical Report (€/day)	95	142.5	190
Scientific-Technical Report (€/hour)	45	67.5	90

If preparation of a thin section for tooth dating is necessary, for subsequent LA-ICP-MS and calculation of U/Th concentration, the charge for LA-HR-ICP-MS must be added (please see the rates for Uranium Series).

If sediment analysis to determine the U/Th/K ratio is necessary, the corresponding charge for elemental analysis must be added (please see the rates for Uranium Series).

GEOCHRONOLOGY: LUMINESCENCE

LUMINESCENCE DATING (OSL/IRSL) (€/sample)	Rate A	Rate B	Rate C
Includes: sample preparation (quartz or feldspar extraction), OSL measurement, dose rate determination, age estimation and brief report describing methodology and results.	372	558	744
USE OF LUMINESCENCE READER* (€/sample)	Rate A	Rate B	Rate C
Use of luminescence reader by a qualified user	102	150	201
Training (€/hour)	15	22,5	30
RENTAL OF PORTABLE GAMMA SPECTROMETER	Rate A	Rate B	Rate C
Equipment rental (€/day)	50	75	100
FIELDWORK	Rate A	Rate B	Rate C
Sample collection (€/day). Price per person	250	375	500
SCIENTIFIC-TECHNICAL REPORT	Rate A	Rate B	Rate C
Scientific-Technical Report (€/day)	95	142.5	190
Scientific-Technical Report (€/hour)	45	67.5	90

*In order to be accepted as a qualified user, previous experience in the use of Risø luminescence readers is essential and a training session (1-2 hours) must be undertaken. The user will be assigned reader time according to the characteristics of the samples to be measured. The activity will be monitored by the supervisor of the radioactive facility IRA 3015.

Partial work (quartz or feldspar extraction, OSL measurement, high resolution gamma spectrometry or beta counting) is available on request, subject to specific rates.

GEOCHRONOLOGY: URANIUM SERIES

FIELDWORK	Rate A	Rate B	Rate C
Taking samples (€/person-day)	250	375	500
URANIUM SERIES DATING	Rate A	Rate B	Rate C
Physical evaluation of the sample/subsampling (€/sample)	36	48	72
Chemical separation (€/sample)	120	180	240
Measurement of MC-HR-ICP-MS (€/sample)	224	336	448
MULTIELEMENTAL ANALYSIS	Rate A	Rate B	Rate C
Physical preparation of the sample (€/hour)	5	7.5	10
Microwave digestion of sample (€/sample)	9	13.5	18
No. samples-Band I (1-10)-OES (€/sample)	15	22.5	30
No. samples-Band II (11-20)-OES (€/sample)	13	19.5	26
No. samples-Band III (21-30)-OES (€/sample)	10	15	20
No. samples-Band IV (31-40)-OES (€/sample)	8	12	16
No. samples-Band V (41-50)-OES (€/sample)	7	10.5	14
No. samples-Band VI (51-80)-OES (€/sample)	6	9	12
No. samples-Band VII (>80)-OES (€/sample)	5.5	8.25	11
No. samples-Band I (1-10)-HRMS (€/sample)	30	45	60
No. samples-Band II (11-20)-HRMS (€/sample)	26	39	52
No. samples-Band III (21-30)-HRMS (€/sample)	20	30	40
No. samples-Band IV (31-40)-HRMS (€/sample)	16	24	32
No. samples-Band V (41-50)-HRMS (€/sample)	14	21	28
No. samples-Band VI (51-80)-HRMS (€/sample)	12	18	24
No. samples-Band VII (>80)-HRMS (€/sample)	11.5	17.25	23
SCIENTIFIC-TECHNICAL REPORT	Rate A	Rate B	Rate C
Scientific-Technical Report (€/day)	95	142.5	190
Scientific-Technical Report (€/hour)	45	67.5	90

If the samples are measured by LA-ICP-OES or LA-HR-ICP-MS, the same rates will apply, but digestion of the samples will not be included as they do not require this kind of preparation.

If preparation of a thin section for laser ablation is necessary, the charge for preparation of the section necessary from the sample must be added (Geology).

DIGITAL AND MULTIMEDIA MAPPING

FIELDWORK	Rate A	Rate B	Rate C
Fieldwork (€/person-day)	250	375	500
GEOFÍSICA	Tarifa A	Tarifa B	Tarifa C
Electrical tomography (€/día)	150	300	600
Ground penetrating radar (€/día)	100	440	300
AERIAL CARTOGRAPHY	Rate A	Rate B	Rate C
Previous budget needed			
2D PRINTING	Rate A	Rate B	Rate C
Premium glossy paper	25	40	50
Photographic paper	23	25	46
Ordinary paper	10	15	20
TOPOGRAPHY	Rate A	Rate B	Rate C
Robotic total station TS15 (€/ day)	65	85	85
Robotic total station TS15 (€/ week)	200	250	300
Robotic total station TS15 (€/month)	450	550	650
Manual total station TS02 (€/ day)	30	40	50
Manual total station TS02 (€/ week)	100	120	150
Manual total station TS02 (€/month)	250	320	370
GPS/ GNSS (centimetric) (€/ day)	60	90	100
GPS/ GNSS (centimetric) (€/ week)	250	300	350
GPS/ GNSS (centimetric) (€/month)	400	600	800
PHOTOGRAMMETRY	Rate A	Rate B	Rate C
Previous budget needed			
SCANNERS	Rate A	Rate B	Rate C
Tripod 3D laser scanner (€/ day)	150	500	550
Tripod 3D laser scanner (€/ week)	600	1500	2000
Tripod 3D laser scanner (€/month)	2000	3000	5000
Handheld or desktop 3D laser scanner (€/ day)	30	120	170
Handheld or desktop 3D laser scanner (€/ week)	200	500	700
Handheld or desktop 3D laser scanner (€/ month)	350	1000	2000
SCIENTIFIC-TECHNICAL REPORT	Rate A	Rate B	Rate C
Scientific-Technical Report (€/day)	95	142.5	190
Scientific-Technical Report (€/hour)	45	67.5	90

Specific conditions:

- 1) The rates do not include loan for service outside the laboratory of the applications for subsequent data processing: only the programs necessary for discharging and basic evaluation of the data are included. Subsequent elaborations of the data shall be considered and charged for separately, as part of scientific-technical reports.
- 2) The rates include the loan of field portables for the desktop scanners only.

The requester shall be responsible for returning the equipment in the condition in which it was loaned. In cases of breakdown, breakage or theft of the equipment, the requester shall bear liability in accordance with the general conditions of the Center.

The equipment is partly insured, although in the event of any claim, the requester shall be liable for the policy excess.

CONSERVATION AND RESTORATION

FIELDWORK	Rate A	Rate B	Rate C
Consultancy, Conservation and Intervention in situ (€/person-day)	250	375	500
TECHNICAL CONSULTANCY	Rate A	Rate B	Rate C
Analysis of state of conservation of cultural, archaeological and paleontological assets (€/ hour)	15	22.5	30
Preventive conservation in museum halls and deposits (physical and environmental compliance, exhibition systems, transport, etc.) (€/ hour)	15	22.5	30
Curative conservation and restoration (€/ hour)	15	22.5	30
Application of analytical techniques to cultural assets (€/ hour)	15	22.5	30
INTERVENTION ON CULTURAL, ARCHAEOLOGICAL AND/OR PALEONTOLOGICAL ASSETS-PREVENTIVE CONSERVATION	Rate A	Rate B	Rate C
Environmental tracking and active control (RH, T, lighting systems, atmospheric contaminants) (€/ hour)	15	22.5	30
Active pest control (€/ hour)	15	22.5	30
Physical conditioning (deposit/transport) (€/ hour)	15	22.5	30
Design of preventive conservation plan/ collections emergency plan (€/ week)	600	900	1200
Temporary physical conditioning (€/ hour)	15	22.5	30
INTERVENTION ON CULTURAL, ARCHAEOLOGICAL AND/OR PALEONTOLOGICAL ASSETS-CURATIVE CONSERVATION & RESTORATION	Rate A	Rate B	Rate C
Desiccation (active control) (€/ hour)	15	22.5	30
Stabilization: desalting (€/ hour)	15	22.5	30
Inhibition of metal corrosion (€/ hour)	15	22.5	30
Protection (€/ hour)	15	22.5	30
Biocide treatments (€/ hour)	15	22.5	30
Cleaning of surfaces/ elimination of crusts (mechanical-chemical) (€/ hour)	15	22.5	30
Surface stabilization, timely internal consolidation, by suction or immersion (€/ hour)	15	22.5	30
Volumetric reconstruction (€/ hour)	15	22.5	30
Volumetric reintegration (€/ hour)	15	22.5	30
Chromatic reintegration (€/ hour)	15	22.5	30
MOLDS AND REPLICAS	Rate A	Rate B	Rate C
Master and first replica-Up to 10 cm (unit)	60	90	120
Master and first replica-From 10 cm-20 cm (unit)	87	130	174
Master and first replica-From 20 cm-30 cm (unit)	115	172	230
Master and first replica-From 30 cm-80 cm (unit)	180	270	360
Master and first replica-More than 80 cm-price on application	-	-	-
Delivery of master-Up to 10 cm (unit)	180	270	360
Delivery of master-From 10 cm-20 cm (unit)	261	391.5	522
Delivery of master-From 20 cm-30 cm (unit)	345	517.5	690
Delivery of master-From 30 cm-80 cm (unit)	540	810	1080

Delivery of master-More than 80 cm-price on application	-	-	-
Second and subsequent replicas-Up to 10 cm (unit)	30	45	60
Second and subsequent replicas-From 10 cm-20 cm (unit)	43	64.5	86
Second and subsequent replicas-From 20 cm-30 cm (unit)	57	85.5	114
Second and subsequent replicas-From 30 cm-80 cm (unit)	90	135	180
Second and subsequent replicas-More than 80 cm-price on application	-	-	-
Chromatic reintegration-Up to 10 cm (unit)	35	52.5	70
Chromatic reintegration-From 10 cm-20 cm (unit)	70	105	140
Chromatic reintegration-From 20 cm-30 cm (unit)	105	157.5	210
Chromatic reintegration-From 30 cm-80 cm (unit)	175	262.5	350
Chromatic reintegration-More than 80 cm-price on application	-	-	-
SCIENTIFIC-TECHNICAL REPORT	Rate A	Rate B	Rate C
Scientific-Technical Report (€/day)	95	142.5	190
Scientific-Technical Report (€/hour)	45	67.5	90