

## NUCLEAR MAGNETIC RESONANCE (NMR) 2021 Prices (In South African Rand)

*An additional admin fee of 7% will be levied for both Academic and Industry clients.*

Instrument access/hr	Self-run	Admin fee	Service fee/hr	Total			
Internal Standard <sup>1</sup> H spectra	R 49	R 0	R27	R76			
Internal Rate	R 145	R 0	R66	R211			
External Academic rate	R 240	7%	R301	R542			
Commercial rate	R 328	7%	R394	R722			
<b>Professional time/hr*</b>							
External Academic rate	R 480						
Commercial rate	R 963						
<b>Deuterated solvents (750 µl. ampule)</b>	<b>CDC13</b>	<b>CD2Cl2</b>	<b>CD3OD</b>	<b>DMSO-d6</b>	<b>D2O</b>	<b>C6D6</b>	<b>Acetone-d6</b>
	R 58	R 408	R 373	R 212	R 212	R 175	R 212
	<b>Toluene-d8</b>	<b>THF-d8</b>	<b>TFA-d1</b>	<b>Ethanol-d6</b>	<b>Hexane-d8</b>	<b>DMF</b>	<b>CD3CN</b>
	R 202	R 933	R 318	R 3180	R 1060	R 816	R 292
<b>Consumables</b>	R 66						

### Examples of common Liquid State NMR Commercial Applications

- Biopolymers: such as PGLA, identification, monomer content and residual monomers
- Absolute Structure determination of purified organic compounds
- Speciation of Inorganic complexes
- Heparin: quality control using latest USP monograph testing for over sulphated chondroitin sulfate and other impurities
- Poloxamer: weight and % oxyethelene
- Chitosan: % deacetylation
- Silicone: polydimethylsiloxane
- Quantitative <sup>13</sup>C NMR of polyethylene and polypropylene
- Quality control of Aloe Vera
- Polymer Tacticity
- Flavonoid identification
- Cannabis quantitative and qualitative analysis of cannabinoids

Test	Application	Monographs
	General NMR method	USP, EP 2.2.33, ASTM E386
Aloe Vera quality control	Origin of an extract and to distinguish between different plant sources	
Alginate	Chemical composition and sequential structure from <sup>1</sup> H and <sup>13</sup> C	ASTM F2259
Amyl Nitrite	<sup>1</sup> H Identification	USP
polypropylene, polyethylene	Quantitative <sup>13</sup> C	
Buserelin	<sup>1</sup> H Identification	EP
Chitosan	% Deacetylation, <sup>1</sup> H	ASTM F2260
Cod-liver Oil	<sup>13</sup> C Identification and positional Distribution ( $\beta(2)$ -acyl) of fatty acids	EP
Enoxaparin	<sup>13</sup> C Identification	USP
Fats and oils	<sup>1</sup> H, <sup>13</sup> C Determination of fatty acid composition in fats and oils	~
Gadoversetamine	Hydroxypropyl Betadex	USP
Polymer tacticity	Quantitative <sup>13</sup> C	~
Goserelin	<sup>13</sup> C Identification	EP
Heparin	<sup>1</sup> H Identification and OSCS screening	USP, EP
Olis	<sup>13</sup> C Distinction between plant and synthetic oils	
Hydroxypropyl Betadex	<sup>1</sup> H Molar Substitution	USP, EP
Lauromacrogol	<sup>13</sup> C-Average chain length of fatty alcohols and moles of ethylene oxide	EP
Medronic Acid	<sup>1</sup> H Identification and Impurity determination	EP
Orphenadrine Citrate	<sup>1</sup> H-Isomer Content	USP
Simethicone	<sup>1</sup> H- Identification	~
Oxytocin	<sup>1</sup> H-Identification	USP
Proteins, peptides	2D, 3D Structure determination from various NMR experiments	

Plant extract complexity	Diffusion separation of components in solution (DOSY)	
Poloxamer	1H-Weight % Oxyethylene	USP
Polyoxyl 10 Lleyl Ether	1H-Average polymer length	USP
Poly lactide and glycolide	1H, 13C- Identification, residual monomer, lactide/glycolide ratio	ASTM F2579, F1925, F2313
Polyoxyl 20 Cetostearyl Ether	1H-Average polymer length	USP
Salmon Oil	13C-Identification and Positional Distribution ( $\beta(2)$ -acyl) of fatty acids	EP
* Partly produced from NMR Spectroscopy in Pharmaceutical Analysis (B. Diehl, et al., 2008) and the various available Monographs		

**\*\*An additional admin fee of 7% will be charged to all external clients, both Academic and Industry.**

<b>Solid State NMR Prices 2020</b>			
<b>Self-run prices (*)</b>	<b>SU academics</b>	<b>academics</b>	<b>commercial</b>
<u>half day (max. 4hrs)</u>		722	1135
<u>day (max. 24hrs)</u>	1094	1445	2527
<u>weekend</u>		2725	4813
<u>week</u>	3000*	6811	12635
* 7 Days. (if more than two days is used, the weekly rate applies)			

### Service prices

<u>per run</u>	academics		commercial	
<u>measurement time(*)</u>	first sample	further samples	first sample	further samples
<b>max. 1hr run</b>	R 601	R 385	R 1053	R 662
<b>max. 3hrs run</b>	R 891	R 674	R 1565	R 1203
<b>max. 7hrs run</b>	R 1143	R 914	R 1926	R 1564
<b>max. 24 hrs run</b>	R 1926	R 1624	R 3370	R 2887

\* includes instrument time, experimental setup, standard sample preparation

<u>analysis packages</u>	academics		commercial	
	first sample	further samples	first sample	further samples
<b><u>coal characterization</u></b>	R 3008	R 2166	R 5294	R 3850

<u>sample prep fee (*)</u>	academics	commercial
	R 233 / sample	R 318 / sample

\* only applicable, if sample preparation is time-consuming (sticky or toxic samples, ...)

<u>Professional time (*)</u>	academics	commercial
	R 481 / hr	R 963 /hr

\* Costs of processing, converting to xy data, interpretation.  
These costs are not charged, if the project is done as collaborative work for publication.

### CD SPECTROMETER PRICING 2020

Instrument access/hr.	Self -run	Submitted	Immediate Priority service
Internal rate	R 180	R361	R481
Academic rate	R 361	R 481	R 568

Commercial rate	R 413	R 602	R 963
<b>Professional time/hr.*</b>			
*sample prep., plots, interpretation, report or publication writing, consulting (initial discussions on project feasibility and structure excluded)			
External Academic rate	R 481		
Commercial rate	R 963		
<b>Analytical solvents available</b>			
	<b>Methanol</b>	<b>Acetonitrile</b>	
	12/ml	28/ml	
<b>N2 gas for temperature work at the NMR facility are free</b>			