

Spectral Data for Molybdenum Ions, Mo VI–Mo XLII

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Spectral Data for Molybdenum Ions, Mo VI-Mo XLII

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Wavelengths, intensities, and classifications for the molybdenum ions Mo VI to Mo XLII are compiled. A short review of the work on each stage of ionization is included. The data are critically evaluated and the best results, in our judgement, are quoted.

Key words: atomic data; energy levels; molybdenum; spectra.

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1. Introduction

From a critical evaluation of the analyses of the spectra Mo VI through Mo XLII, we prepared the present tables of

spectroscopic data. Similar tables were published by Mori *et al.*^{1,2} for the iron ions, Fe VIII–Fe XXVI, and the titanium ions, Ti V–Ti XXII, respectively.

This work was motivated by the needs of the tokamak community for spectral data of selected elements. These elements are present in the interior walls and structures of tokamaks and enter the hot plasmas in small quantities. Their spectra are useful in determining ion temperatures, impurity transport, and other diagnostic data.

After publishing the previous compilation³ of the molybdenum ions, we found that some corrections needed to be made and some references needed to be added. In the present compilation we have made these revisions and adopted energy level values compiled by Sugar, which are in preparation for publication.

We also include values for the ionization energies of each ion. In most cases, experimentally deduced values are lacking, and for these we have quoted the most reliable theoretical value available. Figure 1 shows the calculated ionization potentials of Mo ions by Carlson *et al.*⁴ It suggests the ionization stages to be expected at a given plasma temperature.

The present tables were prepared as follows: The available spectral data for the molybdenum spectra Mo VI and higher were collected from published articles. Section 2 lists references for each ion. These works were critically reviewed and the most reliable in our judgment were selected. The values for the energy levels have been either taken from the original article or recalculated from the most reliable wavelength data.

As is evident from the many corrections to early classi-

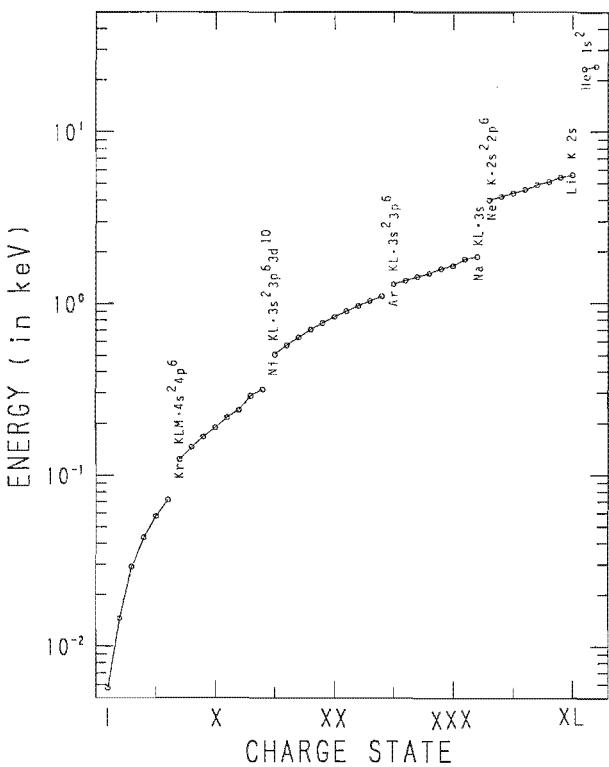


FIG. 1. Ionization potential vs charge state of Mo ions ($Z = 42$).

fications of Mo spectra, these data may still be subject to significant change as more complete spectra are observed.

Prior to the present compilation, Chaghtai and Ahmad,⁵ have compiled the energy level tables of Mo I–Mo XLII. Our results contain extensive revisions and additions to this work.

1.1. Acknowledgments

The authors would like to express their thanks to Dr. N. Shikazono and Dr. S. Igarasi for their encouragement during this work. This work was partially supported by the U.S.-Japan Fusion Research Cooperation Program.

1.2. References for Introduction

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- ⁴T. A. Carlson, C. W. Nestor Jr., N. Wasserman, and J. D. McDowell, At. Data and Nucl. Data Tables **2**, 63 (1970).
- ⁵M. S. Z. Chaghtai and T. Ahmad, *The Molybdenum Spectra of Mo I–XLII*, IAEA Report INDC(IND)-31/GA (1982).

2. Index Correlation References to Mo Ions

Those ions not found in Sec. 3 are included here for completeness, but did not contribute to the compiled data. References are given in Sec. 5.

| Ion | References |
|----------|--|
| Mo VI | 27,29,42,47,75, 102,104 |
| Mo VII | 21,22,27,29,47,79, 103 |
| Mo VIII | 21,24,25,27,29,43, 47,60 |
| Mo IX | 21,23,26,29,47,62, 78,80 |
| Mo X | 8,29,47,77,78,85 |
| Mo XI | 29,77,78 |
| Mo XII | 4,34,47,116 |
| Mo XIII | 1,4,9,11,19,20,39,47, 50,51,53,54,72,81, 97,98,107,113,114 |
| Mo XIV | 4,19,31,32,35,44, 47,49,54,56,58,67,71, 81,82,83,107,111,113 |
| Mo XV | 4,19,66,68,74,94, 95,96,107,111 |
| Mo XVI | 4,5,6,19,40,68,74, 87,92,95,96,100,108,115 |
| Mo XVII | 12,19,39,40,46,57, 68,69,74,84,89,95,115 |
| Mo XVIII | 19,70,96,110,115 |
| Mo XIX | 96,115 |
| Mo XX | 96,115 |

| Ion | References |
|-----------|---|
| Mo XXI | 96,115 |
| Mo XXII | 68,95,96,115 |
| Mo XXIII | 20,68,95,96,100,112 |
| Mo XXIV | 20,65,91,95,96,99,100 |
| Mo XXV | 20,91,95,96 |
| Mo XXVI | 20,36,101 |
| Mo XXVII | 20,31,36,55,101 |
| Mo XXVIII | 20,36,37,101 |
| Mo XXIX | 20,29,36,61,100,101 |
| Mo XXX | 17,20,30,36,61,65,74, 99,101,117 |
| Mo XXXI | 9,15,17,18,20,28,30, 33,36,48,54,59,61, 66,74,88,91,95,96,101, 114 |
| Mo XXXII | 15,17,18,30,41,52, 54,61,64,65,74,90, 91,95,96 |
| Mo XXXIII | 2,3,13,16,18,20,52, 61,65,73,91,95,96 |
| Mo XXXIV | 14,18,20,38,86 |
| Mo XL | 10,63,106 |
| Mo XLI | 10,76,93,106 |
| Mo XLII | 45,105 |

3. Brief Comments on Each Molybdenum Ion

Mo VI (Rb Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^6 4d^2 D_{3/2}$

The $4d-4f$, $4d-5p$, $5s-5p$, $5p-6s$, and $5p-5d$ doublets were first identified by Trawick.¹⁰⁴ Later Charles²⁷ corrected the $4d-4f$ identifications and added the $4d-6p$ doublet. A comprehensive analysis of the spectrum in the range of 232–6337 Å was reported by Edlén *et al.*⁴² who determined 44 levels of the one-electron configurations: ns ($n = 5$ to 8), np ($n = 5$ to 8), nd ($n = 4$ to 8), nf ($n = 4$ to 6), ng ($n = 5$ to 8), nh ($n = 6$ to 8), ni ($n = 7$ to 9), and nk ($n = 8$ and 9). Wavelengths are taken from Edlén *et al.*⁴²

Tauheed *et al.*¹⁰² observed 60 lines due to transitions from the $4p^5 4d^2$ levels to the $4p^6 4d$ ground levels in the wavelength range of 238–347 Å and established 38 levels of the $4p^5 4d^2$ configuration. They also reported classifications of the $4p^6 5s-4p^5 4d^2$, $4p^6 5d-4p^5 4d^2$, $4p^5 4d^2-4p^6 6d$, and $4p^5 4d^2-4p^6 ng$ ($n = 6$ and 7) transitions in the range of 447–2521 Å. The uncertainty of the wavelengths is ± 0.015 and for very faint lines ± 0.03 Å.

The ionization energy was determined by Edlén *et al.*⁴² to be $555\ 132 \pm 2\text{ cm}^{-1}$.

Mo VII (Kr Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^6 ^1S_0$

Chaghtai²² identified nine transitions to the $4p^6 ^1S_0$ ground state from levels with $J = 1$ in the $4p^5 n\ell$ ($4d$, $5s$, $5d$, and $6s$) configurations. The spectrum in the range of 107–

328 Å was reobserved and the classifications were extended to the transitions from the $4p^5 6d$, $4p^5 ns$ ($n = 7$ –10), and $4s4p^6 5p$ levels by Reader *et al.*⁷⁹ The uncertainty of the wavelengths is ± 0.003 Å and for weak lines ± 0.006 Å. The data of Reader *et al.* were adopted in the present compilation.

Tauheed and Chaghtai¹⁰³ measured wavelengths of 318 lines in the range of 282–2326 Å with an uncertainty of ± 0.015 Å. These lines were classified among 80 levels of the configurations $4s^2 4p^6$, $4s^2 4p^5 nd$ ($n = 4$ to 6), $4s^2 4p^5 ns$ ($n = 5$ to 10), $4s^2 4p^5 np$ ($n = 5$ and 6), $4s4p^6 4d$, and $4s4p^6 5p$.

The ionization energy was determined by Reader *et al.*⁷⁹ to be $1\ 013\ 550 \pm 150\text{ cm}^{-1}$.

Mo VIII (Br Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^5 ^2P_{3/2}$

Wavelengths of the $4s^2 4p^5 ^2P_{1/2,3/2}-4s4p^6 ^2S_{1/2}$ transitions were measured by Charles.²⁷ The $4p^5 ^2P_{1/2,3/2}-4p^4 4d$ and $5s$ transition arrays were first classified by Chaghtai.²⁴ An improved measurement of the arrays and new energy levels were reported by Ekberg *et al.*⁴³ whose wavelength values are quoted in the present compilation. The uncertainty of the wavelengths is ± 0.003 Å.

Classifications were extended to the transitions between the ground levels and the $4p^4 5d$, $6d$, $6s$, and $7s$ levels by Chaghtai *et al.*²⁵ It should be noted that misprints in upper level designation (the J of the parent state) of the lines at 123.973, 126.296, and 126.747–130.111 Å occur in this article. The wavelengths of the $4p^5 ^2P_{1/2}-4p^4 (^1D_2) 6s$ ($2,1/2)_{3/2}$ and $4p^5 ^2P_{3/2}-4p^4 (^1D_2) 6s$ ($2,1/2)_{5/2}$ lines at 124.620 and 121.111 Å, were revised as 124.561 and 121.080 Å by Khan *et al.*⁶⁰ The first is apparently a misprint and should be 125.561 Å.

The ionization energy was calculated as $1\ 162\ 000 \pm 8000\text{ cm}^{-1}$ by Ekberg *et al.*⁴³ and as $1\ 157\ 900 \pm 8000\text{ cm}^{-1}$ by Chaghtai *et al.*²⁵

Mo IX (Se Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^4 ^3P_2$

An analysis of the $4s^2 4p^4-4s^2 4p^3 5s$ array in the range of 155–178 Å was published by Chaghtai *et al.*²⁶ Level values for the ground configuration were obtained more accurately by Reader and Acquista⁸⁰ in their interpretation of the $4s^2 4p^4-4s4p^5$ array at 538–577 Å.

The $4s^2 4p^4-4s^2 4p^3 4d$ array was analyzed by Rahimullah *et al.*⁷⁸ A considerable extension of the work was reported by Khatoon *et al.*⁶² who interpreted the transitions from the $4p^3 5d$, $6d$, $6s$, and $7s$ configurations. They derived the value for the ionization energy from the ns series of $1\ 323\ 700 \pm 8000\text{ cm}^{-1}$.

The uncertainty of the wavelengths is ± 0.005 Å.

Mo X (As Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^3 ^4S_{3/2}$

The $4s^2 4p^3-4s^2 4p^2 5s$ transition array was first identified by Rahimullah *et al.*⁷⁷ and confirmed by Reader and Ac-

quista,⁸⁵ whose wavelengths are adopted in the present compilation. The uncertainty of the wavelengths is $\pm 0.005 \text{ \AA}$.

The $4s^24p^3-4s4p^4$ array was also analyzed by Reader and Acquista⁸⁵ and all the eight levels of $4s4p^4$ configuration were established.

The $4s^24p^3-4s^24p^24d$ array was identified and the 19 levels of $4s^24p^24d$ were determined by Rahimullah *et al.*⁷⁸ An additional measurement was reported by Ateqad *et al.*⁸ who determined the other seven levels of the $4s^24p^24d$ configuration (leaving ${}^4F_{9/2}$ which cannot combine with the ground configuration). The uncertainty of the wavelengths is $\pm 0.01 \text{ \AA}$.

The ionization energy was calculated as $1\ 503\ 000 \pm 10\ 000 \text{ cm}^{-1}$ by Reader and Acquista.⁸⁵

Mo XI (Ge Sequence)

Ground state: $1s^22s^22p^63s^23p^63d\ 104s^24p^2\ 3P_0$

An analysis of the $4s^24p^2-4s^24p5s$ array was first reported by Rahimullah *et al.*⁷⁷ Rahimullah *et al.*⁷⁸ added analyses of the arrays $4s^24p^2-4s^24p4d$ and $4s^24p^2-4s4p^3$.

In the latter article, the values of the levels $4s^24p^2\ 3P_{0,1,2}$, 1D_2 , and 1S_0 of the ground configuration and the excited levels $4s^24p5s\ 3P_0,1,2$ and 1P_1 were improved, and all the $4s^24p4d$ levels (except 3F_4 which does not combine with levels of the ground configuration) plus the two $4s4p^3\ 1P_1$ and 3S_1 levels, were established. The uncertainty of the wavelengths is less than $\pm 0.005 \text{ \AA}$. The ionization energy was calculated by Cowan²⁹ to be $1\ 688\ 000 \pm 10\ 000 \text{ cm}^{-1}$.

Mo XII (Ga Sequence)

Ground state: $1s^22s^22p^63s^23p^63d\ 104s^24p\ 2P_{1/2}$

There are few measurements for this ionic species. Alexander *et al.*⁴ classified the two transitions $4s^24p\ 2P_{3/2}-4s^25d\ 2D_{5/2}$ and $4s^24p\ 2P_{1/2}-4s^25d\ 2D_{3/2}$. Curtis *et al.*³⁴ measured the ground state $4s^24p\ 2P^\circ$ splitting as $28\ 463(2) \text{ cm}^{-1}$ from an M1 transition in a tokamak plasma. Comparing the $2P^\circ$ interval with that by Alexander *et al.*⁴ they concluded that the line classifications in Ref. 4 were incorrect.

The transitions $4s^24p\ 2P^\circ-4s^25s\ 2S$ and $4s^24p\ 2P^\circ-4s4p^2\ 2P$ were identified by Reader, Acquista, and Goldsmith.¹¹⁶ Their measurement uncertainty is $\pm 0.005 \text{ \AA}$, and the $4s^24p$ ground state interval is given as $28\ 467(4) \text{ cm}^{-1}$. We have averaged this with the tokamak value. They also gave a value for the ionization energy of $1\ 857\ 300 \pm 500 \text{ cm}^{-1}$, derived with an empirically adjusted Dirac-Fock calculation.

Mo XIII (Zn Sequence)

Ground state: $1s^22s^22p^63s^23p^63d\ 104s^2\ 1S_0$

Observation of the lines due to the $4s^2\ 1S_0-4s5p\ 1,3P_1$ and $4s4p\ 3P_{2,1,0}-4s5s\ 3S_1$ transitions was reported by Alexander *et al.*⁴ The uncertainty of the wavelengths is $\pm 0.005 \text{ \AA}$.

The resonance line $4s^2\ 1S_0-4s4p\ 1P_1$ was observed in tokamak plasmas by Hinnov *et al.*⁵³ and Hinnov.⁵⁴ This line was identified in a laser-produced plasma by Reader and

Acquista.⁸¹ Finkenthal *et al.*⁴⁷ also observed this line as well as the intercombination line ${}^1S_0-{}^3P_1$ at 481.02 \AA and the magnetic quadrupole line $4s^2\ 1S_0-4s4p\ 3P_2$ at 460.9 \AA in addition to three lines belonging to $4s4p-4p^2$ transitions. Wavelengths of the $4s^2-4s4p$ and $4s4p-4p^2$ transition arrays were remeasured with an uncertainty of $\pm 0.01 \text{ \AA}$ in a laser-produced plasma by Litzén and Ando,⁷² who reported energy levels of the configurations $4s4p$ and $4p^2$. They show that identification of the multiplet $4s4p\ 3P^\circ-4s5s\ 3S$ in Ref. 4 is incorrect. They confirmed the identification by Finkenthal *et al.*⁴⁷ of the $4s4p\ 3P_2-4p^2\ 3P_2$ and $4s^2\ 1S_0-4s4p\ 3P_1$ lines, but found that the other identifications are incorrect.

Burkhalter *et al.*¹⁹ reported the $3d\ 104s^2\ 1S_0-3d\ 94s^24p\ 3D_1$ and $-3d\ 94s^24p\ 1P_1$ transitions, and Wyart *et al.*¹⁰⁷ confirmed them with an uncertainty of $\pm 0.010 \text{ \AA}$. Wavelengths are quoted from the latter article.

The ionization energy was calculated by Cowan²⁰ as $2\ 240\ 000 \pm 22\ 000 \text{ cm}^{-1}$.

Mo XIV (Cu Sequence)

Ground state: $1s^22s^22p^63s^23p^63d\ 104s\ 2S_{1/2}$

Alexander *et al.*⁴ observed the one-electron spectrum comprising the $4s-5p$, $4s-6p$, $4p-5s$, $4p-5d$, and $4d-5f$ lines in the region from 45 to 350 \AA .

The $4s-4p$ resonance doublet was measured by Hinnov *et al.*^{53,54} in tokamak discharges. An improved measurement was reported by Reader and Acquista.⁸¹

Curtis *et al.*³¹ classified the $4s-7p$, $4p-6s$, $4p-7s$, $4p-8s$, $4f-5g$, $4f-6g$, and $4d-5p$ transitions in the range of 35 – 184 \AA with wavelength accuracy ranging from ± 0.05 to $\pm 0.2 \text{ \AA}$.

Reader *et al.*⁸² observed the spectrum in the range of 70 – 630 \AA . From 35 line identifications, a system of 22 energy levels was determined. The level system ($3d\ 10n\ell$) includes the series ns ($n = 4$ – 6), np ($n = 4$ – 6), nd ($n = 4$ and 5), nf ($n = 4$ – 6), and ng ($n = 5$ – 7). The uncertainty of wavelengths is $\pm 0.005 \text{ \AA}$. The value of the $6p\ 2P_{1/2}$ level was revised by Reader *et al.*⁸³ In the present compilation their results are adopted. They found that the identifications by Curtis *et al.* of the $4f-5g$, $4f-6g$, and $4d-5p$ transitions are incorrect.

The spectra in the range of 50 – 54 \AA were analyzed by Burkhalter *et al.*,¹⁹ Klapisch *et al.*,⁶⁷ Wyart *et al.*,¹⁰⁷ and Wyart *et al.*¹¹¹ Lines involved in the spectra have been identified as the $3d\ 104s-3d\ 94s4p$, $3d\ 104p-3d\ 94p^2$, and $3d\ 104s-3d\ 107p$ transitions. Wavelengths in Ref. 111 are adopted in this compilation. The uncertainty is given as $\pm 0.005 \text{ \AA}$.

The ionization energy was determined as $2\ 441\ 000 \pm 2000 \text{ cm}^{-1}$ by Curtis *et al.*³¹ from ns and np series, and as $2\ 440\ 600 \pm 300 \text{ cm}^{-1}$ by Reader *et al.*⁸¹ from their ng series ($n = 5$ – 7).

Mo XV (Ni Sequence)

Ground state: $1s^22s^22p^63s^23p^63d\ 10\ 1S_0$

The three resonance lines $3d\ 10\ 1S_0-3d\ 94p\ 3P_1$, 1P_1 , and 3D_1 were first measured with an uncertainty of $\pm 0.02 \text{ \AA}$ by Alexander *et al.*⁴ The ${}^1S_0-{}^1P_1$ and 3D_1 lines were observed in tokamak discharges together with new lines: the resonance line $3d\ 10\ 1S_0-3d\ 94f\ 1P_1$ at $35.362 \pm 0.005 \text{ \AA}$ by Schwob *et*

*al.*⁹⁶ and two electric quadrupole lines $3d^{10}1S_0-3d^94s\ 1^3D_2$ at 57.927 ± 0.005 Å and 58.832 ± 0.005 Å by Klapisch *et al.*⁶⁶ These lines were also observed by Mansfield *et al.*⁷⁴

Burkhalter *et al.*¹⁹ remeasured the resonance lines $3d^{10}-3d^94p$ and $3d^94f$ with an uncertainty of ± 0.010 Å. Improved measurements with an uncertainty of ± 0.005 Å were given by Schweitzer *et al.*⁹⁴ for the $3d^{10}-3d^94f$ and $5f$ transitions, Wyart *et al.*¹⁰⁷ for the $3d^{10}1S_0-3d^94p\ 1^P_1$ and 3^3D_1 transitions, and Wyart *et al.*¹¹¹ for the $3d^{10}1S_0-3d^94p\ 3^P_1$ transition. These wavelength data are adopted in this compilation.

We derived the value for the ionization energy of $4\ 391\ 000(5000)$ cm⁻¹ from the nf terms, with the assumption of a quantum defect difference obtained from Mo XIV.

Mo XVI (Co Sequence)

Ground state: $1s^22s^22p^63s^23p^63d^9\ 2^D_{5/2}$

The magnetic dipole line $3p^63d^9\ 2^D_{5/2}-2^D_{3/2}$ was measured in a tokamak discharge by Suckewer *et al.*¹⁰⁰ with an uncertainty of ± 0.2 Å.

The transition arrays $3p^63d^9-3p^53d^{10}$ and $3p^63d^84p$ in the range of 43–78 Å were first observed by Edlén.⁴⁰ Identification of the arrays was followed by Alexander *et al.*,⁴ Mansfield *et al.*,⁷⁴ and Burkhalter *et al.*¹⁹ Revision of identifications in the previous works and addition of new lines are given by Ryabtsev and Reader⁹² who measured and identified 46 lines belonging to these transition arrays, which were adopted in the present compilation. The uncertainty of the wavelengths is ± 0.005 Å. Measurements of the $3d^9-3d^84p$ array were also reported by Ando⁵ and Wyart *et al.*¹⁰⁸

The electric quadrupole lines $3d^9-3d^84s$ were observed in a tokamak discharge by Mansfield *et al.*⁷⁴ These lines were measured in the range of 51–55 Å with an uncertainty of ± 0.01 Å.

The $3d^9-3d^84f$ lines in the region from 32 to 34 Å were first classified in a tokamak spectrum by Schwob *et al.*⁹⁶ Mansfield *et al.*⁷⁴ identified six lines. The identifications were extended to a total of 17 lines by Burkhalter *et al.*¹⁹ Ando and Ishii⁶ revised the previous identifications and extended the number to 29. Wavelength data are taken from Ref. 6.

The ionization energy was calculated by Carlson *et al.*¹¹⁵ as 571 ± 22 eV.

Mo XVII (Fe Sequence)

Ground state: $1s^22s^22p^63s^23p^63d^8\ 3^F_4$

The $3p^63d^8-3p^53d^9$ transitions were investigated by Bogdanovichene *et al.*¹² and Burkhalter *et al.*¹⁹ An extended investigation was reported by Reader and Ryabtsev,⁸⁴ who measured wavelengths of 43 lines and established all of the $3p^63d^8$ and $3p^53d^9$ levels. The uncertainty of the wavelengths is ± 0.005 Å. Additional measurement of the $3p^63d^8\ 1S_0-3d^53d^9\ 3^3D_1$ transition and revision of the $3d^63d^8\ 1S_0$ level were made by Reader and Ryabtsev.⁸⁹

The $3d^8-3d^74p$ transitions were observed as a band of lines in the region from 42.1 to 43.2 Å in a tokamak plasma by Schwob *et al.*⁹⁶ Mansfield *et al.*⁷⁴ reobserved a spectrum

in almost the same wavelength range and identified 18 lines and a band of lines extending from 42.08 to 42.12 Å. A comprehensive investigation for the transitions was reported by Wyart *et al.*¹⁰⁹ who measured and identified 47 lines. According to their designations, the upper levels in the table are represented by the symbol $(N)_J$, the index N increasing with energy from the lowest level ($N = 1$) for each J .

The wavelength of the intra-shell transition $3d^8\ 3^F_4-3^F_3$ was measured in a tokamak discharge by Suckewer *et al.*¹⁰⁰ The wavelength is in good agreement with that derived from the shorter wavelength measurements of Reader and Ryabtsev.⁸⁴

The ionization energy was calculated by Carlson *et al.*¹¹⁵ as 636 ± 25 eV.

Mo XVIII (Mn Sequence)

Ground state: $1s^22s^22p^63s^23p^63d^7\ 4^F_{9/2}$

A group of unresolved lines in the range 38.7–40.0 Å was attributed to the $3d^7-3d^64p$ transitions by Schwob *et al.*⁹⁶

Four lines, lying at about 67 Å, were measured and identified as the $3p^63d^7-3p^53d^8$ lines by Burkhalter *et al.*¹⁹ Wyart *et al.*¹¹⁰ extended the wavelength range of measurement to 66–83.5 Å and identified about 50 lines due to the $3p-3d$ transitions. In the table, the upper levels established by Wyart *et al.*¹¹⁰ are designated by the symbol $(N)_J$ for each J , the index N increasing with energy from the lowest level ($N = 1$) for each J . Designations of the $3d^7$ levels are taken from Kubo *et al.*⁷⁰ who reported the result of a calculation carried out by means of the Cowan's program package with use of scaling factors in Table XI of Ref. 110.

The ionization energy was calculated by Carlson *et al.*¹¹⁵ as 702 ± 28 eV.

Mo XIX (Cr Sequence)

Ground state: $1s^22s^22p^63s^23p^63d^6\ 5^D_4$

No resolved lines are reported for this ion. Schwob *et al.*⁹⁶ observed the $3d^6-3d^54p$ array in the range of 36.0–36.9 Å.

The ionization energy was calculated by Carlson *et al.*¹¹⁵ as 767 ± 30 eV.

Mo XX (V Sequence)

Ground state: $1s^22s^22p^63s^23p^63d^5\ 6S_{5/2}$

No resolved lines are reported for this ion. Schwob *et al.*⁹⁶ observed the $3d^5-3d^44f$ array in the range of 25.8–26.6 Å.

The ionization energy was calculated by Carlson *et al.*¹¹⁵ as 833 ± 33 eV.

Mo XXI (Ti Sequence)

Ground state: $1s^22s^22p^63s^23p^63d^4\ 5^D_0$

No resolved lines are reported for this ion. Schwob *et al.*⁹⁶ observed the $3d^4-3d^34f$ array in the range of 24.5–25.2 Å.

The ionization energy was calculated by Carlson *et al.*¹¹⁵ as 902 ± 36 eV.

Mo XXII (Sc Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^3 4F_{3/2}$

No resolved lines are reported for this ion. Schwob *et al.*⁹⁶ observed the $3d^3 - 3d^2 4f$ array in the range of 23.5–24.1 Å.

The ionization energy was calculated by Carlson *et al.*¹¹⁵ as 968 ± 39 eV.

Mo XXIII (Ca Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^2 3F_2$

The magnetic dipole transition $3d^2 3F_2 - 3F_3$ was observed in a tokamak discharge at 3553.3 ± 0.3 Å (in air) by Suckewer *et al.*¹⁰⁰ They also tentatively identified a weak line at 3319.8 ± 0.3 Å (in air) as $3d^2 3F_3 - 3F_4$. The latter identification was rejected by Wyart *et al.*¹¹²

Schwob *et al.*⁹⁶ observed the $3d^2 - 3d 4f$ array in the range of 22.4–22.9 Å.

The ionization energy was calculated by Cowan²⁰ as 1020 ± 10 eV.

Mo XXIV (K Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^2 D_{3/2}$

Schwob *et al.*⁹⁶ reported the $3d^2 D - 4f^2 F$ doublet with an accuracy of ± 0.005 Å.

The ground state 2D splitting was observed by means of an M1 line at 2686.5 ± 0.3 Å (in air) in a tokamak discharge by Suckewer *et al.*¹⁰⁰

The ionization energy was calculated by Cowan²⁰ as 1083 ± 11 eV.

Mo XXV (Ar Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^6 ^1S_0$

Two resonance lines $3p^6 ^1S_0 - 3p^5 4d ^3D_1$ and 1P_1 were observed by Schwob *et al.*⁹⁶ in a tokamak discharge. They report a wavelength uncertainty of ± 0.005 Å.

The ionization energy was calculated by Cowan²⁰ as 1264 ± 13 eV.

Mo XXVI (Cl Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^5 ^2P_{3/2}$

The ground term $^2P^o$ splitting was observed by means of a magnetic dipole transition observed in a tokamak discharge at 534.9 ± 0.3 Å by Denne *et al.*³⁶

The ionization energy was calculated by Cowan²⁰ as 1323 ± 13 eV.

Mo XXVII (S Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^4 ^3P_2$

Four magnetic dipole lines were observed in tokamak discharges arising within the $3p^4$ ground configuration by

Denne *et al.*³⁶ and Hinnov.⁵⁵ They established all levels but 3P_0 of this group.

The ionization energy was calculated by Cowan²⁰ as 1387 ± 14 eV.

Mo XXVIII (P Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^3 ^4S_{3/2}$

Seven magnetic dipole lines were observed in tokamak discharges arising within the $3p^3$ ground configuration by Denne *et al.*^{36,37} They established all the levels of this group.

The ionization energy was calculated by Cowan²⁰ as 1449 ± 14 eV.

Mo XXIX (Si Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p^2 ^3P_0$

Five magnetic dipole lines were observed in tokamak discharges arising within the $3p^2$ ground configuration by Denne *et al.*³⁶ and Hinnov.⁵⁵ They established all the levels of this group.

The ionization energy was calculated by Cowan²⁰ as 1535 ± 15 eV.

Mo XXX (Al Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 3p ^2P_{1/2}^o$

Denne *et al.*³⁶ identified the magnetic dipole line $3s^2 3p ^2P_{1/2}^o - 2P_{3/2}^o$ at 490.1 Å. Burkhalter *et al.*¹⁷ tentatively identified the $3p - 3d$ doublet at 92.511 and 108.2 Å and classified the $3p - 4d$, $3p - 4s$, and $3d - 4f$ lines in the wavelength region from 15.627 to 18.056 Å. The uncertainty of the wavelengths is ± 0.010 Å. Hinnov *et al.*¹¹⁷ replaced the $3p - 3d$ by the lines 104.33 Å for $^2P_{3/2} - 2D_{5/2}$ and 105.59 Å for $^2P_{3/2} - 2D_{3/2}$. This paper was published too late for these wavelengths to be included in the table. The $3p - 4d$ lines are not included in this compilation because they do not give the correct $3p$ splitting.

The ionization energy was calculated by Cowan²⁰ as 1601 ± 16 eV.

Mo XXXI (Mg Sequence)

Ground state: $1s^2 2s^2 2p^6 3s^2 ^1S_0$

The resonance line $3s^2 ^1S_0 - 3s 3p ^1P_1^o$ at 115.991 Å was first reported at 117.0 ± 0.5 Å in a tokamak discharge by Hinnov.⁵⁴ Burkhalter *et al.*¹⁷ observed two other lines within a few angstroms of Hinnov's wavelength and identified as the $3s 3p ^1P_1 - 3s 3d ^1D_2$ and $3s 3p ^3P_2 - 3s 3d ^3D_3$ lines by means of isoelectronic extrapolation and comparisons with theoretical calculations. Similar observations were also made by Mansfield *et al.*⁷⁴ and Reader.⁸⁸ Wavelength values of Reader were adopted in the present compilation. The uncertainty of the wavelengths is ± 0.015 Å.

The $3s^2 ^1S_0 - 3s 4p ^3P_1^o$ and $^1P_1^o$ lines at 14.928 and 14.745 Å were identified by Burkhalter *et al.*¹⁷ The latter was observed by Schwob *et al.*⁹⁶ and Mansfield *et al.*⁷⁴ Identification of the $3s 3d - 3s 4f$ array was also given by Burkhalter *et al.*¹⁷

The intercombination line $3s^2 \ ^1S_0 - 3s3p \ ^3P_1^o$ at $190.5 \pm 0.2 \text{ \AA}$ and the two magnetic dipole lines $3s3p \ ^3P_1^o - ^3P_2^o$ and $^3P_2^o - ^1P_1^o$ at $577.5 \pm 0.3 \text{ \AA}$ and $609.8 \pm 0.3 \text{ \AA}$ were identified in tokamak discharges by Finkenthal *et al.*⁴⁸ and Denne *et al.*³⁶ The latter is classified tentatively by Kaufman and Sugar.¹⁰¹

The ionization energy was calculated by Cowan²⁰ as $1726 \pm 17 \text{ eV}$.

Mo XXXII (Na Sequence)

Ground state: $1s^2 2s^2 2p^6 3s \ ^2S_{1/2}$

The first measurement was reported by Hinnov,⁵⁴ who identified the two resonance lines $3s \ ^2S_{1/2} - 3p \ ^2P_{1/2,3/2}^o$ at 177 and 129 \AA . Schwob *et al.*⁹⁶ observed the $3d \ ^2D_{5/2} - 4f \ ^2F_{7/2}^o$, $3p \ ^2P_{3/2}^o - 4s \ ^2S_{1/2}$, and $3s \ ^2S_{1/2} - 4p \ ^2P_{3/2}^o$ transitions.

Burkhalter *et al.*¹⁷ remeasured wavelengths of the $3s - 4p, 3p - 4s, 4d$ and $5d, 3d - 4p, 4f$ and $5f, 3s - 3p$, and $3p - 3d$ transitions in the $10 - 19 \text{ \AA}$ and $100 - 177 \text{ \AA}$ ranges, and established 17 levels on the basis of 22 transitions at about the same time Mansfield *et al.*⁷⁴ reported similar results with the addition of $3d - 6f$ and $3s - 5p$. We give their measurements, except for the 3-3 transitions which are from Burkhalter *et al.* The uncertainty of the wavelengths is $\pm 0.010 \text{ \AA}$.

Edlén⁴¹ derived a value for the ionization energy of $1791.0 \pm 0.5 \text{ eV}$ from a polarization analysis of the nf levels.

Mo XXXIII (Ne Sequence)

Ground state: $1s^2 2s^2 2p^6 \ ^1S_0$

Aglitskii *et al.*² measured wavelengths in the range of 4–5.5 \AA and identified six lines due to the $2s^2 2p^6 - 2s^2 2p^5 3s$, $2s^2 2p^5 3d$, and $2s2p^6 3p$ transitions. In a tokamak spectrum the $2p^6 \ ^1S_0 - 2p^5 3d \ ^3D_1^o$ and $2p^5 3s \ ^1,3P_1^o$ lines were classified by Schwob *et al.*⁹⁶

Improved wavelength measurements were reported for the $2p^6 - 2p^5 3s$ transitions by Gordon *et al.*⁵² and for the $2s^2 2p^6 - 2s^2 2p^5 3d$ and $2s2p^6 3p$ transitions by Aglitskii *et al.*³ These wavelength data are adopted in this compilation.

Wavelengths of the $2p - 4s$ and $4d$ and $2p - nd$ ($n = 5$ to 7) transitions were reported by Burkhalter *et al.*^{16,18}

The ionization energy was calculated by Cowan²⁰ as $4257 \pm 42 \text{ eV}$.

Mo XXXIV (F Sequence)

Ground state: $1s^2 2s^2 2p^5 \ ^2P_{3/2}^o$

Boiko *et al.*¹⁴ identified the $2p^5 - 2p^4 3d$ array in the wavelength range of $4.472 - 4.536 \text{ \AA}$ with an uncertainty of $\pm 0.002 \text{ \AA}$.

Reader *et al.*⁸⁶ predicted the wavelength of the magnetic dipole transition $2s^2 2p^5 \ ^2P_{3/2}^o - ^2P_{1/2}^o$ (denoted by "P" in the wavelength table) with the observation of the $2s^2 2p^5 \ ^2P^o - 2s2p^6$ lines. Their wavelength uncertainty is $\pm 0.015 \text{ \AA}$.

The ionization energy was calculated by Cowan²⁰ as $4430 \pm 44 \text{ eV}$.

Mo XL (Li Sequence)

Ground state: $1s^2 2s \ ^2S_{1/2}$

Observations of four x-ray lines by Beier and Kunze¹⁰ at $0.6859, 0.6885, 0.6893$, and 0.6912 \AA are attributed to transitions from doubly excited configurations. Three of these are multiply classified.

Calculated energy levels for the $1s^2 n\ell$ configurations, $n = 2 - 5$ and $\ell = s, p$, and d , were performed by Vainshstein and Safranova.¹⁰⁶ The ionization energy was derived from the calculated ns levels.

Mo XLI (He Sequence)

Ground state: $1s^2 \ ^1S$

Beier and Kunze¹⁰ observed three lines of the $1s^2 - 1s2p$ multiplet with an uncertainty of $\pm 0.0002 \text{ \AA}$. They differ at most by 0.005 \AA from the calculated values of Vainshstein and Safranova (1985),¹⁰⁶ estimate their own relative uncertainty to be one part in 10^4 .

The ionization energy was calculated by Safranova.⁹³

M XLII (H Sequence)

Ground state: $1s \ ^2S_{1/2}$

Turechek and Kunze¹⁰⁵ measured the $1s \ ^2S - 2p, 3p$ transitions with an accuracy of ± 0.0005 and $\pm 0.001 \text{ \AA}$, respectively. Binding energies were calculated by Erickson.⁴⁵ We adopted his value for the ionization energy.

4. Explanation of Tables of Spectroscopic Data

| | |
|----------------|--|
| IP | Ionization potential of the tabulated ions in cm^{-1} and eV. |
| Wavelength | Wavelengths in vacuum of observed spectral lines in Angstroms. Published wavelengths in air are converted to vacuum. |
| Classification | Customary spectroscopic designation for lower (first) and upper levels generating the spectral lines; electronic configuration followed by the term in LS -, jj -, or $j\ell$ -coupling notation. The superscript ° on the term indicates odd parity. Terms enclosed in parentheses refer to the parent state. |
| Energy levels | Energy levels (in cm^{-1}) for lower (first) and upper levels of spectral lines. |
| Int | Approximate intensity of the spectral line, generally estimated from the blackness (or density) of the line on photographic plate. |
| References | The numbers are given in the bibliographic listing following the tables. When more than one reference for a line is given, that reference from which the values of wavelength and intensity values are adopted is identified with a superscript ° on the number. |

5. Spectroscopic Data for Mo VI–Mo XLII

Mo VI (Rb-Sequence) IP = 555132 ± 2 cm⁻¹ (68.8284 ± 0.0002 eV)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. | |
|----------------|---|---|-----------------------------------|----------|-------|-----|
| 6337.79 | 4f ² F _{5/2} | 5d ² D _{3/2} | 267048.8 | 282827.1 | 5 | 42 |
| 6190.38 | _{7/2} | _{5/2} | 267458.4 | 283612.5 | 11 | 42 |
| 6037.29 | _{5/2} | _{5/2} | 267048.8 | 283612.5 | 0.75 | 42 |
| 5450.33 | 5f ² F _{7/2} | 6d ² D _{5/2} | 368206.3 | 386553.8 | 7.5 | 42 |
| 5278.32 | 7i ² I | 8k ² K° | 474436.4 | 493381.8 | 45 | 42 |
| 5248.91 | 7h ² H° | 8i ² I | 474299.7 | 493351.3 | 35 | 42 |
| 5044.96 | 7g ² G _{9/2} | 8h ² H _{11/2} | 473427.7 | 493249.5 | 10 | 42 |
| 5044.18 | _{7/2} | _{9/2} | 473424.6 | 493249.5 | 8.5 | 42 |
| 4274.15 | 7p ² P _{3/2} | 7d ² D _{3/2} | 416070.2 | 439466.6 | 8 | 42 |
| 4233.23 | _{3/2} | _{5/2} | 416070.2 | 439692.8 | 100 | 42 |
| 4063.19 | _{1/2} | _{3/2} | 414855.4 | 439466.6 | 60 | 42 |
| 3736.38 | 6s ² S _{1/2} | 6p ² P _{1/2} | 313809.1 | 340572.9 | 90 | 42 |
| 3477.60 | _{1/2} | _{3/2} | 313809.1 | 342564.6 | 200 | 42 |
| 3485.77 | 6d ² D _{3/2} | 7p ² P _{1/2} | 386167.3 | 414855.4 | 13 | 42 |
| 3387.95 | _{5/2} | _{3/2} | 386553.8 | 416070.2 | 20 | 42 |
| 3344.16 | _{3/2} | _{3/2} | 386167.3 | 416070.2 | 1.5 | 42 |
| 3409.58 | 6h ² H° | 7i ² I | 445107.3 | 474436.4 | 200 | 42 |
| 3324.70 | 5f ² F _{5/2} | 5g ² G _{7/2} | 365106.6 | 395184.6 | 22 | 42 |
| 3294.24 | 6g ² G _{9/2} | 7h ² H _{11/2} | 443943.7 | 474299.7 | 50 | 42 |
| 3293.95 | _{7/2} | _{9/2} | 443941.0 | 474299.7 | 50 | 42 |
| 3134.23 | 7i ² I | 9k ² K° | 474436.4 | 506342.2 | 10 | 42 |
| 3123.34 | 7h ² H° | 9i ² I | 474299.7 | 506316.7 | 10 | 42 |
| 2520.90 | 4p ⁵ 4d ² (¹ G) ² G _{7/2} | 4p ⁶ 6d ² D _{5/2} | 346887 | 386553.8 | 16 | 102 |
| 2352.55 | 6f ² F _{7/2} | 7g ² G _{9/2} | 430920.6 | 473427.7 | 8 | 42 |
| 2316.01 | 4p ⁵ 4d ² (³ P) ² D _{3/2} | 4p ⁶ 6d ² D _{5/2} | 343373 | 386553.8 | 13 | 102 |
| 2305.01 | 6d ² D _{3/2} | 6f ² F _{5/2} | 386167.3 | 429551.1 | 30 | 42 |
| 2253.94 | _{5/2} | _{7/2} | 386553.8 | 430920.6 | 50 | 42 |
| 2293.43 | 6p ² P _{3/2} | 6d ² D _{3/2} | 342564.6 | 386167.3 | 10 | 42 |
| 2273.28 | _{3/2} | _{5/2} | 342564.6 | 386553.8 | 50 | 42 |
| 2193.25 | _{1/2} | _{3/2} | 340572.9 | 386167.3 | 40 | 42 |
| 2005.48 | 4p ⁵ 4d ² (³ P) ⁴ D _{1/2} | 4p ⁶ 6d ² D _{3/2} | 336331 | 386167.3 | 2 | 102 |
| 1872.92 | _{3/2} | _{3/2} | 332775 | 386167.3 | 2 | 102 |
| 1749.01 | _{7/2} | _{5/2} | 329379 | 386553.8 | 17 | 102 |
| 2003.14 | 5g ² G | 6h ² H° | 395185.7 | 445107.3 | 50 | 42 |
| 1869.03 | 4p ⁶ 5d ² D _{3/2} | 4p ⁵ 4d ² (³ P) ⁴ D _{1/2} | 282827.1 | 336331 | 5 | 102 |
| 1820.76 | 7p ² P _{3/2} | 8d ² D _{5/2} | 416070.2 | 470991.4 | 4 | 42 |
| 1785.88 | _{1/2} | _{3/2} | 414855.4 | 470850.0 | 4 | 42 |

Mo VI (Rb-Sequence) — Continued

| Wavelength (Å) | Classification | Energy Levels (cm⁻¹) | | Int. | Refs. | |
|----------------|--|--|----------|----------|-------|----------|
| 1731.73 | 5d ² D _{3/2} | 6p ² P _{1/2} ^o | 282827.1 | 340572.9 | 50 | 42 |
| 1696.29 | 5/2 | 3/2 | 283612.5 | 342564.6 | 75 | 42 |
| 1673.99 | 3/2 | 3/2 | 282827.1 | 342564.6 | 30 | 42 |
| 1718.07 | 6p ² P _{3/2} ^o | 7s ² S _{1/2} | 342564.6 | 400769.5 | 70 | 42 |
| 1661.22 | 1/2 | 1/2 | 340572.9 | 400769.5 | 40 | 42 |
| 1673.43 | 4p ⁶ 5d ² D _{5/2} | 4p ⁵ 4d ² (³ P) ² D _{3/2} ^o | 283612.5 | 343373 | 2 | 102 |
| 1651.73 | 3/2 | 3/2 | 282827.1 | 343373 | 1 | 102 |
| 1600.14 | 4p ⁶ 5d ² D _{3/2} | 4p ⁵ 4d ² (³ P) ² S _{1/2} ^o | 282827.1 | 345325 | 3 | 102 |
| 1595.45 | 5s ² S _{1/2} | 5p ² P _{1/2} ^o | 119727.3 | 182405.5 | 70 | 42 |
| 1479.17 | 1/2 | 3/2 | 119727.3 | 187332.8 | 90 | 42 |
| 1589.34 | 4p ⁶ 5d ² D _{5/2} | 4p ⁵ 4d ² (³ P) ⁴ S _{3/2} ^o | 283612.5 | 346535 | 4 | 102 |
| 1569.70 | 3/2 | 3/2 | 282827.1 | 346535 | 2 | 102 |
| 1527.96 | 4p ⁶ 5d ² D _{3/2} | 4p ⁵ 4d ² (³ P) ² D _{5/2} ^o | 282827.1 | 348274 | 9 | 102 |
| 1504.57 | 4p ⁵ 4d ² (¹ D) ² F _{7/2} ^o | 4p ⁶ 6d ² D _{5/2} | 320087 | 386553.8 | 2 | 102 |
| 1476.52 | 4p ⁵ 4d ² (³ F) ² F _{7/2} ^o | 4p ⁶ 7g ² G _{7/2} | 405696 | 473424.6 | 6 | 102 |
| 1453.57 | 4p ⁵ 4d ² (³ F) ⁴ F _{5/2} ^o | 4p ⁶ 6d ² D _{3/2} | 317375 | 386167.3 | 4 | 102 |
| 1344.92 | 7/2 | 5/2 | 312200 | 386553.8 | 24 | 102 |
| 1426.85 | 4p ⁵ 4d ² (¹ G) ² F _{5/2} ^o | 4p ⁶ 6d ² D _{5/2} | 316473 | 386553.8 | 16 | 102 |
| 1392.86 | 4p ⁶ 5d ² D _{5/2} | 4p ⁵ 4d ² (¹ S) ² P _{3/2} ^o | 283612.5 | 355407 | 5 | 102 |
| 1368.54 | 4p ⁵ 4d ² (³ F) ² F _{5/2} ^o | 4p ⁶ 7g ² G _{7/2} | 400354 | 473424.6 | 2 | 102 |
| 1331.62 | 4p ⁵ 4d ² (¹ D) ² F _{7/2} ^o | 4p ⁶ 5g ² G _{7/2} | 320087 | 395184.6 | 13 | 102 |
| 1320.33 | 5f ² F _{7/2} ^o | 6g ² G _{9/2} | 368206.3 | 443943.7 | 10 | 42 |
| 1268.51 | 5/2 | 7/2 | 365106.6 | 443941.0 | 10 | 42 |
| 1264.04 | 5g ² G | 7h ² H ^o | 395185.7 | 474299.7 | 15 | 42 |
| 1315.54 | 4p ⁵ 4d ² (¹ D) ² D _{5/2} ^o | 4p ⁶ 6d ² D _{5/2} | 310540 | 386553.8 | 2 | 102 |
| 1255.58 | 4p ⁵ 4d ² (³ P) ⁴ P _{3/2} ^o | 4p ⁶ 6d ² D _{5/2} | 306909 | 386553.8 | 2 | 102 |
| 1197.79 | 5/2 | 3/2 | 302680 | 386167.3 | 1 | 102 |
| 1227.07 | 5d ² D _{5/2} | 5f ² F _{5/2} ^o | 283612.5 | 365106.6 | 15 | 42 |
| 1215.38 | 3/2 | 5/2 | 282827.1 | 365106.6 | 40 | 42 |
| 1182.14 | 5/2 | 7/2 | 283612.5 | 368206.3 | 60 | 42 |
| 1202.39 | 4p ⁵ 4d ² (³ F) ⁴ G _{5/2} ^o | 4p ⁶ 6d ² D _{3/2} | 303004 | 386167.3 | 4 | 102 |
| 1196.90 | 5/2 | 5/2 | 303004 | 386553.8 | 2 | 102 |
| 1195.03 | 7/2 | 5/2 | 302871 | 386553.8 | 2 | 102 |
| 1079.41 | 4p ⁵ 4d ² (³ F) ⁴ D _{7/2} ^o | 4p ⁶ 6d ² D _{5/2} | 293911 | 386553.8 | 2 | 102 |
| 1047.18 | 5p ² P _{3/2} ^o | 5d ² D _{3/2} | 187332.8 | 282827.1 | 35 | 42 |
| 1038.64 | 3/2 | 5/2 | 187332.8 | 283612.5 | 80 | 42 |
| 995.800 | 1/2 | 3/2 | 182405.5 | 282827.1 | 70 | 42°, 104 |
| 1019.76 | 5g ² G | 8h ² H ^o | 395185.7 | 493249.5 | 2 | 42 |

Mo VI (Rb-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | | Int. | Refs. | | |
|----------------|---|--|---|--|----------|----------|-----|---------------|
| 1011.20 | 6p | ² P _{1/2} ^o | 7d | ² D _{3/2} | 340572.9 | 439466.6 | 2 | 42 |
| 972.930 | 5f | ² F _{7/2} ^o | 8d | ² D _{5/2} | 368206.3 | 470991.4 | 4 | 42 |
| 945.665 | | ^{5/2} | | ^{3/2} | 365106.6 | 470850.0 | 4 | 42 |
| 944.410 | | ^{5/2} | | ^{5/2} | 365106.6 | 470991.4 | 3 | 42 |
| 950.816 | 6p | ² P _{3/2} ^o | 8s | ² S _{1/2} | 342564.6 | 447738.6 | 10 | 42 |
| 933.125 | | ^{1/2} | | ^{1/2} | 340572.9 | 447738.6 | 4 | 42 |
| 950.335 | 5f | ² F _{7/2} ^o | 7g | ² G _{9/2} | 368206.3 | 473427.7 | 10 | 42 |
| 850.799 | 4p ⁶ 5d | ² D _{3/2} | 4p ⁵ 4d ² (³ F) | ² F _{5/2} ^o | 282827.1 | 400354 | 8 | 102 |
| 819.131 | | ^{5/2} | | ^{7/2} | 283612.5 | 405696 | 16 | 102 |
| 839.655 | 4f | ² F _{7/2} ^o | 6d | ² D _{5/2} | 267458.4 | 386553.8 | 6 | 42 |
| 807.446 | 4p ⁵ 4d ² (¹ D) | ² F _{7/2} ^o | 4p ⁶ 6g | ² G _{7/2} | 320087 | 443941.0 | 8 | 102 |
| 804.233 | 5f | ² F _{7/2} ^o | 8g | ² G _{9/2} | 368206.3 | 492548 | 6 | 42 |
| 784.690 | | ^{5/2} | | ^{7/2} | 365106.6 | 492545 | 3 | 42 |
| 792.475 | 4p ⁶ 5d | ² D _{3/2} | 4p ⁵ 4d ² (³ P) | ² P _{1/2} ^o | 282827.1 | 409020 | 8 | 102 |
| 790.659 | 5p | ² P _{3/2} ^o | 6s | ² S _{1/2} | 187332.8 | 313809.1 | 75 | 27,42°,104 |
| 761.020 | | ^{1/2} | | ^{1/2} | 182405.5 | 313809.1 | 50 | 27,42°,104 |
| 782.912 | 4f | ² F _{7/2} ^o | 5g | ² G _{9/2} | 267458.4 | 395186.7 | 75 | 42 |
| 780.429 | | ^{5/2} | | ^{7/2} | 267048.8 | 395184.6 | 60 | 42 |
| 778.670 | 6p | ² P _{3/2} ^o | 8d | ² D _{5/2} | 342564.6 | 470991.4 | 8 | 42 |
| 767.595 | | ^{1/2} | | ^{3/2} | 340572.9 | 470850.0 | 3 | 42 |
| 757.396 | 5d | ² D _{3/2} | 7p | ² P _{1/2} ^o | 282827.1 | 414855.4 | 5 | 42 |
| 750.522 | | ^{3/2} | | ^{3/2} | 282827.1 | 416070.2 | 5 | 42 |
| 736.220 | 4p ⁶ 5d | ² D _{3/2} | 4p ⁵ 4d ² (³ F) | ² D _{5/2} ^o | 282827.1 | 418661 | 9 | 102 |
| 702.548 | 6s | ² S _{1/2} | 8p | ² P _{1/2} ^o | 313809.1 | 456150.0 | 5 | 42 |
| 699.056 | | ^{1/2} | | ^{3/2} | 313809.1 | 456856.0 | 8 | 42 |
| 685.219 | 5d | ² D _{5/2} | 6f | ² F _{5/2} ^o | 283612.5 | 429551.1 | 5 | 42 |
| 681.574 | | ^{3/2} | | ^{5/2} | 282827.1 | 429551.1 | 25 | 42 |
| 678.871 | | ^{5/2} | | ^{7/2} | 283612.5 | 430920.6 | 30 | 42 |
| 580.616 | 4f | ² F _{7/2} ^o | 7d | ² D _{5/2} | 267458.4 | 439692.8 | 6 | 42 |
| 577.237 | 5d | ² D _{5/2} | 8p | ² P _{3/2} ^o | 283612.5 | 456856.0 | 8 | 42 |
| 576.951 | | ^{3/2} | | ^{1/2} | 282827.1 | 456150.0 | 5 | 42 |
| 566.620 | 4f | ² F _{7/2} ^o | 6g | ² G _{9/2} | 267458.4 | 443943.7 | 60 | 42 |
| 565.317 | | ^{5/2} | | ^{7/2} | 267048.8 | 443941.0 | 50 | 42 |
| 548.229 | 4d | ² D _{3/2} | 5p | ² P _{1/2} ^o | 0 | 182405.5 | 80 | 27,42°,47,104 |
| 541.286 | | ^{5/2} | | ^{3/2} | 2584.3 | 187332.8 | 100 | 27,42°,47,104 |
| 533.809 | | ^{3/2} | | ^{3/2} | 0 | 187332.8 | 40 | 27,42°,47,104 |
| 534.265 | 4p ⁶ 5s | ² S _{1/2} | 4p ⁵ 4d ² (³ P) | ⁴ P _{3/2} ^o | 119727.3 | 306909 | 13 | 102 |
| 501.944 | 5p | ² P _{3/2} ^o | 6d | ² D _{5/2} | 187332.8 | 386553.8 | 20 | 42 |
| 490.763 | | ^{1/2} | | ^{3/2} | 182405.5 | 386167.3 | 15 | 42 |

Mo VI (Rb-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | | Int. | Refs. | | |
|----------------|--------------------|-------------------------------|---|-------------------------------|----------|----------|----|-----------|
| 491.314 | 4f | ² F _{7/2} | 8d | ² D _{5/2} | 267458.4 | 470991.4 | 5 | 42 |
| 490.680 | | _{5/2} | | _{3/2} | 267048.8 | 470850.0 | 4 | 42 |
| 485.511 | 4f | ² F _{7/2} | 7g | ² G _{9/2} | 267458.4 | 473427.7 | 55 | 42 |
| 484.553 | | _{5/2} | | _{7/2} | 267048.8 | 473424.6 | 30 | 42 |
| 477.982 | 4p ⁶ 5s | ² S _{1/2} | 4p ⁵ 4d ² (¹ D) | ² P _{3/2} | 119727.3 | 328933 | 13 | 102 |
| 468.533 | 5p | ² P _{3/2} | 7s | ² S _{1/2} | 187332.8 | 400769.5 | 50 | 42 |
| 457.963 | | _{1/2} | | _{1/2} | 182405.5 | 400769.5 | 30 | 42 |
| 452.800 | 5s | ² S _{1/2} | 6p | ² P _{1/2} | 119727.3 | 340572.9 | 50 | 42 |
| 448.754 | | _{1/2} | | _{3/2} | 119727.3 | 342564.6 | 80 | 42 |
| 447.130 | 4p ⁶ 5s | ² S _{1/2} | 4p ⁵ 4d ² (³ P) | ² D _{3/2} | 119727.3 | 343373 | 6 | 102 |
| 444.288 | 4f | ² F _{7/2} | 8g | ² G _{9/2} | 267458.4 | 492548 | 8 | 42 |
| 396.628 | 5p | ² P _{3/2} | 7d | ² D _{3/2} | 187332.8 | 439466.6 | 1 | 42 |
| 396.264 | | _{3/2} | | _{5/2} | 187332.8 | 439692.8 | 8 | 42 |
| 384.015 | 5p | ² P _{3/2} | 8s | ² S _{1/2} | 187332.8 | 447738.6 | 15 | 42 |
| 376.873 | | _{1/2} | | _{1/2} | 182405.5 | 447738.6 | 10 | 42 |
| 378.117 | 4d | ² D _{5/2} | 4f | ² F _{5/2} | 2584.3 | 267048.8 | 30 | 27,42° |
| 377.534 | | _{5/2} | | _{7/2} | 2584.3 | 267458.4 | 90 | 27,42°,47 |
| 374.463 | | _{3/2} | | _{5/2} | 0 | 267048.8 | 80 | 27,42° |
| 352.541 | 5p | ² P _{3/2} | 8d | ² D _{5/2} | 187332.8 | 470991.4 | 4 | 42 |
| 346.774 | 4p ⁶ 4d | ² D _{5/2} | 4p ⁵ 4d ² (³ F) | ⁴ D _{3/2} | 2584.3 | 290959 | 2 | 102 |
| 346.072 | | _{5/2} | | _{5/2} | 2584.3 | 291557 | 19 | 102 |
| 345.618 | | _{3/2} | | _{1/2} | 0 | 289337 | 16 | 102 |
| 343.687 | | _{3/2} | | _{3/2} | 0 | 290959 | 16 | 102 |
| 343.268 | | _{5/2} | | _{7/2} | 2584.3 | 293911 | 22 | 102 |
| 342.985 | | _{3/2} | | _{5/2} | 0 | 291557 | 22 | 102 |
| 338.831 | 5s | ² S _{1/2} | 7p | ² P _{1/2} | 119727.3 | 414855.4 | 8 | 42 |
| 337.450 | | _{1/2} | | _{3/2} | 119727.3 | 416070.2 | 15 | 42 |
| 333.229 | 4p ⁶ 4d | ² D _{5/2} | 4p ⁵ 4d ² (³ P) | ⁴ P _{5/2} | 2584.3 | 302680 | 8 | 102 |
| 330.381 | | _{3/2} | | _{5/2} | 0 | 302680 | 19 | 102 |
| 328.593 | | _{5/2} | | _{3/2} | 2584.3 | 306909 | 22 | 102 |
| 325.832 | | _{3/2} | | _{3/2} | 0 | 306909 | 28 | 102 |
| 323.332 | | _{3/2} | | _{1/2} | 0 | 309280 | 7 | 102 |
| 333.015 | 4p ⁶ 4d | ² D _{5/2} | 4p ⁵ 4d ² (³ F) | ⁴ G _{7/2} | 2584.3 | 302871 | 31 | 102 |
| 332.871 | | _{5/2} | | _{5/2} | 2584.3 | 303004 | 6 | 102 |
| 330.027 | | _{3/2} | | _{5/2} | 0 | 303004 | 16 | 102 |
| 325.510 | 4p ⁶ 4d | ² D _{5/2} | 4p ⁵ 4d ² (¹ D) | ² D _{3/2} | 2584.3 | 309788 | 7 | 102 |
| 324.721 | | _{5/2} | | _{5/2} | 2584.3 | 310540 | 8 | 102 |
| 322.808 | | _{3/2} | | _{3/2} | 0 | 309788 | 13 | 102 |
| 322.020 | | _{3/2} | | _{5/2} | 0 | 310540 | 23 | 102 |
| 322.981 | 4p ⁶ 4d | ² D _{5/2} | 4p ⁵ 4d ² (³ F) | ⁴ F _{7/2} | 2584.3 | 312200 | 40 | 102 |
| 318.219 | | _{5/2} | | _{3/2} | 2584.3 | 316835 | 2 | 102 |
| 317.670 | | _{5/2} | | _{5/2} | 2584.3 | 317375 | 16 | 102 |
| 315.620 | | _{3/2} | | _{3/2} | 0 | 316835 | 19 | 102 |
| 315.085 | | _{3/2} | | _{5/2} | 0 | 317375 | 19 | 102 |

Mo VI (Rb-Sequence) -- Continued

| Wavelength (Å) | Classification | | Energy | Levels (cm⁻¹) | Int. | Refs. | | |
|----------------|----------------|-------------------|-------------------------|--------------------------------|--------|----------|----|-----|
| 320.136 | 4p⁶4d | ²D _{5/2} | 4p⁵4d ² (¹G) | ²F _{5/2} ^o | 2584.3 | 314952 | 34 | 102 |
| 318.584 | | ⁵/₂ | | ⁷/₂ | 2584.3 | 316473 | 49 | 102 |
| 317.508 | | ³/₂ | | ⁵/₂ | 0 | 314952 | 49 | 102 |
| 314.958 | 4p⁶4d | ²D _{5/2} | 4p⁵4d ² (¹D) | ²F _{7/2} ^o | 2584.3 | 320087 | 61 | 102 |
| 298.970 | | ⁵/₂ | | ⁵/₂ | 2584.3 | 337067 | 19 | 102 |
| 296.661 | | ³/₂ | | ⁵/₂ | 0 | 337067 | 28 | 102 |
| 314.168 | 4p⁶4d | ²D _{3/2} | 4p⁵4d ² (¹D) | ²P _{1/2} ^o | 0 | 318301 | 40 | 102 |
| 306.418 | | ⁵/₂ | | ³/₂ | 2584.3 | 328933 | 16 | 102 |
| 304.015 | | ³/₂ | | ³/₂ | 0 | 328933 | 5 | 102 |
| 307.734 | 4p⁶4d | ²D _{5/2} | 4p⁵4d ² (³F) | ²G _{7/2} ^o | 2584.3 | 327540 | 4 | 102 |
| 307.064 | 4p⁶4d | ²D _{5/2} | 4p⁵4d ² (³P) | ⁴D _{5/2} ^o | 2584.3 | 328253 | 10 | 102 |
| 306.010 | | ⁵/₂ | | ⁷/₂ | 2584.3 | 329379 | 28 | 102 |
| 304.639 | | ³/₂ | | ⁵/₂ | 0 | 328253 | 22 | 102 |
| 302.848 | | ⁵/₂ | | ³/₂ | 2584.3 | 332775 | 8 | 102 |
| 300.502 | | ³/₂ | | ³/₂ | 0 | 332775 | 25 | 102 |
| 297.330 | | ³/₂ | | ¹/₂ | 0 | 336331 | 22 | 102 |
| 294.148 | 4d | ²D _{5/2} | 6p | ²P _{3/2} ^o | 2584.3 | 342564.6 | 30 | 42 |
| 293.630 | | ³/₂ | | ¹/₂ | 0 | 340572.9 | 20 | 42 |
| 291.927 | | ³/₂ | | ³/₂ | 0 | 342564.6 | 8 | 42 |
| 293.439 | 4p⁶4d | ²D _{5/2} | 4p⁵4d ² (³P) | ²D _{3/2} ^o | 2584.3 | 343373 | 34 | 102 |
| 291.226 | | ³/₂ | | ³/₂ | 0 | 343373 | 19 | 102 |
| 289.255 | | ⁵/₂ | | ⁵/₂ | 2584.3 | 348274 | 10 | 102 |
| 287.123 | | ³/₂ | | ⁵/₂ | 0 | 348274 | 22 | 102 |
| 290.734 | 4p⁶4d | ²D _{5/2} | 4p⁵4d ² (³P) | ⁴S _{3/2} ^o | 2584.3 | 346535 | 19 | 102 |
| 288.576 | | ³/₂ | | ³/₂ | 0 | 346535 | 13 | 102 |
| 289.582 | 4p⁶4d | ²D _{3/2} | 4p⁵4d ² (³P) | ²S _{1/2} ^o | 0 | 345325 | 22 | 102 |
| 290.442 | 4p⁶4d | ²D _{5/2} | 4p⁵4d ² (¹G) | ²G _{7/2} ^o | 2584.3 | 346887 | 34 | 102 |
| 283.438 | 4p⁶4d | ²D _{5/2} | 4p⁵4d ² (¹S) | ²P _{3/2} ^o | 2584.3 | 355407 | 28 | 102 |
| 281.375 | | ³/₂ | | ³/₂ | 0 | 355407 | 34 | 102 |
| 270.836 | | ³/₂ | | ¹/₂ | 0 | 369227 | 19 | 102 |
| 275.846 | 4d | ²D _{5/2} | 5f | ²F _{5/2} ^o | 2584.3 | 365106.6 | 6 | 42 |
| 273.893 | | ³/₂ | | ⁵/₂ | 0 | 365106.6 | 60 | 42 |
| 273.506 | | ⁵/₂ | | ⁷/₂ | 2584.3 | 368206.3 | 70 | 42 |
| 251.403 | 4p⁶4d | ²D _{5/2} | 4p⁵4d ² (³F) | ²F _{5/2} ^o | 2584.3 | 400354 | 28 | 102 |
| 249.774 | | ³/₂ | | ⁵/₂ | 0 | 400354 | 40 | 102 |
| 248.070 | | ⁵/₂ | | ⁷/₂ | 2584.3 | 405696 | 70 | 102 |
| 244.487 | 4p⁶4d | ²D _{3/2} | 4p⁵4d ² (³P) | ²P _{1/2} ^o | 0 | 409020 | 45 | 102 |
| 243.492 | | ⁵/₂ | | ³/₂ | 2584.3 | 413276 | 28 | 102 |
| 241.969 | | ³/₂ | | ³/₂ | 0 | 413276 | 55 | 102 |
| 241.854 | 4d | ²D _{5/2} | 7p | ²P _{3/2} ^o | 2584.3 | 416070.2 | 20 | 42 |
| 241.052 | | ³/₂ | | ¹/₂ | 0 | 414855.4 | 15 | 42 |
| 240.35 | | ³/₂ | | ³/₂ | 0 | 416070.2 | 5 | 42 |
| 240.686 | 4p⁶4d | ²D _{5/2} | 4p⁵4d ² (³F) | ²D _{3/2} ^o | 2584.3 | 418057 | 34 | 102 |
| 240.34 | | ⁵/₂ | | ⁵/₂ | 2584.3 | 418661 | 33 | 102 |
| 239.205 | | ³/₂ | | ³/₂ | 0 | 418057 | 52 | 102 |
| 238.857 | | ³/₂ | | ⁵/₂ | 0 | 418661 | 64 | 102 |
| 233.457 | 4d | ²D _{5/2} | 6f | ²F _{7/2} ^o | 2584.3 | 430920.6 | 25 | 42 |
| 232.801 | | ³/₂ | | ⁵/₂ | 0 | 429551.1 | 15 | 42 |

Mo VII (Kr-Sequence) IP = $1013550 \pm 150 \text{ cm}^{-1}$ ($125.664 \pm 0.020 \text{ eV}$)

| Wavelength (Å) | Classification | Energy | Levels (cm ⁻¹) | Int. | Refs. | |
|----------------|-------------------------------|-------------------------------|----------------------------|--------|-------|-----|
| 2325.59 | $4p^5(^2P_{3/2}^o)6p [2]_0$ | $4p^5(^2P_{3/2}^o)6d [2]_1^o$ | 752533 | 795532 | 14 | 103 |
| 1888.33 | $[1]$ | $[2]$ | 739454 | 792410 | 14 | 103 |
| 2225.70 | $4p^5(^2P_{3/2}^o)6p [2]_1$ | $4p^5(^2P_{3/2}^o)6d [2]_0^o$ | 745292 | 790221 | 4 | 103 |
| 2190.79 | $[1]$ | $[1]$ | 745292 | 790938 | 13 | 103 |
| 2197.91 | $4p^5(^2P_{1/2}^o)6p [2]_2$ | $4p^5(^2P_{3/2}^o)7s [2]_2^o$ | 769856 | 815350 | 18 | 103 |
| 2173.46 | $4p^5(^2P_{3/2}^o)6p [2]_2$ | $4p^5(^2P_{3/2}^o)6d [2]_2^o$ | 746401 | 792410 | 13 | 103 |
| 2035.38 | $[2]$ | $[1]$ | 746401 | 795532 | 2 | 103 |
| 2164.35 | $4p^5(^2P_{1/2}^o)6p [2]_2$ | $4p^5(^2P_{1/2}^o)6d [2]_3^o$ | 769856 | 816059 | 4 | 103 |
| 1937.03 | $[1]$ | $[2]$ | 763636 | 815261 | 4 | 103 |
| 2083.63 | $4p^5(^2P_{3/2}^o)6p [2]_3$ | $4p^5(^2P_{3/2}^o)6d [2]_4^o$ | 744128 | 792121 | 18 | 103 |
| 2074.99 | $[3]$ | $[3]$ | 744128 | 792321 | 14 | 103 |
| 1874.43 | $4p^5(^2P_{1/2}^o)5d [2]_2^o$ | $4p^5(^2P_{3/2}^o)6p [2]_1^o$ | 686105 | 739454 | 14 | 103 |
| 1593.75 | $[1]$ | $[0]$ | 689788 | 752533 | 17 | 103 |
| 1831.64 | $4p^5(^2P_{1/2}^o)5s [2]_1^o$ | $4p^5(^2P_{3/2}^o)5p [2]_2^o$ | 502931 | 557526 | 62 | 103 |
| 1723.45 | $4p^5(^2P_{1/2}^o)5d [2]_2^o$ | $4p^5(^2P_{3/2}^o)6p [2]_3^o$ | 686105 | 744128 | 2 | 103 |
| 1710.50 | $4p^5(^2P_{1/2}^o)5d [2]_2^o$ | $4p^5(^2P_{3/2}^o)6p [2]_2^o$ | 685377 | 743840 | 3 | 103 |
| 1702.09 | $[2]$ | $[3]$ | 685377 | 744128 | 3 | 103 |
| 1672.59 | $4p^5(^2P_{1/2}^o)5d [2]_3^o$ | $4p^5(^2P_{3/2}^o)6p [2]_2^o$ | 686613 | 746401 | 9 | 103 |
| 1658.48 | $4p^5(^2P_{1/2}^o)5d [2]_2^o$ | $4p^5(^2P_{3/2}^o)6p [2]_2^o$ | 686105 | 746401 | 2 | 103 |
| 1637.03 | $4p^5(^2P_{3/2}^o)6s [2]_1^o$ | $4p^5(^2P_{1/2}^o)6p [2]_0^o$ | 710068 | 771155 | 1 | 103 |
| 1608.34 | $4p^5(^2P_{1/2}^o)5s [2]_1^o$ | $4p^5(^2P_{3/2}^o)5p [2]_0^o$ | 502931 | 565106 | 3 | 103 |
| 1607.98 | $4p^5(^2P_{3/2}^o)5s [2]_1^o$ | $4p^5(^2P_{3/2}^o)5p [2]_1^o$ | 481294 | 543485 | 20 | 103 |
| 1513.83 | $[2]$ | $[1]$ | 477429 | 543485 | 31 | 103 |
| 1565.32 | $4p^5(^2P_{3/2}^o)6p [2]_0^o$ | $4p^5(^2P_{3/2}^o)7s [2]_1^o$ | 752533 | 816418 | 2 | 103 |
| 1552.06 | $4p^5(^2P_{3/2}^o)6p [2]_0^o$ | $4p^5(^2P_{1/2}^o)6d [2]_1^o$ | 752533 | 816964 | 9 | 103 |
| 1466.53 | $4p^5(^2P_{1/2}^o)6p [2]_0^o$ | $4p^5(^2P_{1/2}^o)7s [2]_1^o$ | 771155 | 839344 | 2 | 103 |
| 1372.52 | $[1]$ | $[0]$ | 765875 | 838733 | 2 | 103 |
| 1361.11 | $[1]$ | $[1]$ | 765875 | 839344 | 2 | 103 |
| 1461.31 | $4p^5(^2P_{1/2}^o)5s [2]_1^o$ | $4p^5(^2P_{1/2}^o)5p [2]_1^o$ | 502931 | 571364 | 1 | 103 |
| 1413.92 | $[0]$ | $[1]$ | 500637 | 571364 | 7 | 103 |
| 1452.20 | $4p^5(^2P_{3/2}^o)6p [2]_2^o$ | $4p^5(^2P_{1/2}^o)6d [2]_2^o$ | 746401 | 815261 | 17 | 103 |
| 1435.62 | $[2]$ | $[3]$ | 746401 | 816059 | 4 | 103 |
| 1429.17 | $[1]$ | $[2]$ | 745292 | 815261 | 5 | 103 |
| 1450.38 | $4p^5(^2P_{3/2}^o)6p [2]_2^o$ | $4p^5(^2P_{3/2}^o)7s [2]_2^o$ | 746401 | 815350 | 17 | 103 |
| 1428.24 | $[2]$ | $[1]$ | 746401 | 816418 | 1 | 103 |
| 1427.38 | $[1]$ | $[2]$ | 745292 | 815350 | 1 | 103 |
| 1420.67 | $4p^5(^2P_{3/2}^o)5d [2]_1^o$ | $4p^5(^2P_{3/2}^o)6p [2]_1^o$ | 669065 | 739454 | 3 | 103 |
| 1277.85 | $[2]$ | $[1]$ | 661198 | 739454 | 14 | 103 |
| 1198.04 | $[1]$ | $[0]$ | 669065 | 752533 | 4 | 103 |

Mo VII (Kr-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy | Levels (cm⁻¹) | Int. | Refs. |
|----------------|----------------------------------|----------------------------------|--------|---------------|------|-------|
| 1417.16 | 4p⁵(²P⁰ _{3/2})6p [½]₂ | 4p⁵(²P⁰ _{1/2})6d [½]₁° | 746401 | 816964 | 6 | 103 |
| 1395.28 | 1 | 1 | 745292 | 816964 | 1 | 103 |
| 1408.72 | 4p⁵(²P⁰ _{3/2})5s [½]₂° | 4p⁵(²P⁰ _{3/2})5p [½]₂ | 477429 | 548414 | 2 | 103 |
| 1356.90 | 2 | 3 | 477429 | 551129 | 58 | 103 |
| 1404.04 | 4p⁵(²P⁰ _{3/2})6p [½]₃ | 4p⁵(²P⁰ _{3/2})7s [½]₂° | 744128 | 815350 | 20 | 103 |
| 1398.41 | 2 | 2 | 743840 | 815350 | 1 | 103 |
| 1402.52 | 4p⁵(²P⁰ _{3/2})6p [½]₃ | 4p⁵(²P⁰ _{1/2})6d [½]₂° | 744128 | 815427 | 1 | 103 |
| 1367.51 | 2 | 1 | 743840 | 816964 | 8 | 103 |
| 1359.91 | 4p⁵(²P⁰ _{3/2})5s [½]₁° | 4p⁵(²P⁰ _{3/2})5p [½]₁ | 481294 | 554828 | 2 | 103 |
| 1311.81 | 1 | 2 | 481294 | 557526 | 32 | 103 |
| 1291.99 | 2 | 1 | 477429 | 554828 | 2 | 103 |
| 1248.47 | 2 | 2 | 477429 | 557526 | 5 | 103 |
| 1355.49 | 4p⁵(²P⁰ _{3/2})5d [½]₂° | 4p⁵(²P⁰ _{3/2})6p [½]₁ | 665682 | 739454 | 17 | 103 |
| 1354.15 | 4p⁵(²P⁰ _{1/2})5d [½]₁° | 4p⁵(²P⁰ _{1/2})6p [½]₁ | 689788 | 763636 | 4 | 103 |
| 1248.91 | 1 | 2 | 689788 | 769856 | 5 | 103 |
| 1194.05 | 2 | 2 | 686105 | 769856 | 64 | 103 |
| 1347.54 | 4p⁵(²P⁰ _{1/2})5s [½]₁° | 4p⁵(²P⁰ _{1/2})5p [½]₁ | 502931 | 577141 | 8 | 103 |
| 1307.11 | 0 | 1 | 500637 | 577141 | 31 | 103 |
| 1331.62 | 4p⁵(²P⁰ _{1/2})6p [½]₁ | 4p⁵(²P⁰ _{1/2})7s [½]₀° | 763636 | 838733 | 8 | 103 |
| 1320.90 | 1 | 1 | 763636 | 839344 | 2 | 103 |
| 1317.61 | 4p⁵(²P⁰ _{3/2})6p [½]₁ | 4p⁵(²P⁰ _{3/2})7s [½]₂° | 739454 | 815350 | 2 | 103 |
| 1299.28 | 1 | 1 | 739454 | 816418 | 2 | 103 |
| 1314.30 | 4p⁵(²P⁰ _{1/2})5d [½]₁° | 4p⁵(²P⁰ _{1/2})6p [½]₁ | 689788 | 765875 | 2 | 103 |
| 1228.97 | 1 | 0 | 689788 | 771155 | 17 | 103 |
| 1294.56 | 4p⁵(²P⁰ _{3/2})5d [½]₃° | 4p⁵(²P⁰ _{3/2})6p [½]₃ | 666881 | 744128 | 19 | 103 |
| 1279.43 | 2 | 2 | 665682 | 743840 | 19 | 103 |
| 1293.10 | 4p⁵(²P⁰ _{3/2})5d [½]₁° | 4p⁵(²P⁰ _{3/2})6p [½]₂ | 669065 | 746401 | 4 | 103 |
| 1189.17 | 2 | 1 | 661198 | 745292 | 3 | 103 |
| 1173.66 | 2 | 2 | 661198 | 746401 | 7 | 103 |
| 1277.85 | 4p⁵(²P⁰ _{1/2})5d [½]₂° | 4p⁵(²P⁰ _{1/2})6p [½]₁ | 685377 | 763636 | 14 | 103 |
| 1257.53 | 4p⁵(²P⁰ _{3/2})5d [½]₃° | 4p⁵(²P⁰ _{3/2})6p [½]₂ | 666881 | 746401 | 19 | 103 |
| 1256.14 | 2 | 1 | 665682 | 745292 | 8 | 103 |
| 1253.62 | 4p⁵(²P⁰ _{1/2})5d [½]₂° | 4p⁵(²P⁰ _{1/2})6p [½]₁ | 686105 | 765875 | 14 | 103 |
| 1242.22 | 4p⁵(²P⁰ _{1/2})5d [½]₂° | 4p⁵(²P⁰ _{1/2})6p [½]₁ | 685377 | 765875 | 2 | 103 |
| 1240.03 | 4p⁵(²P⁰ _{1/2})5p [½]₁ | 4p⁵(²P⁰ _{3/2})5d [½]₀° | 577141 | 657783 | 4 | 103 |
| 1224.48 | 4p⁵(²P⁰ _{3/2})5d [½]₀° | 4p⁵(²P⁰ _{3/2})6p [½]₁ | 657783 | 739454 | 4 | 103 |
| 1222.20 | 4p⁵(²P⁰ _{3/2})5d [½]₃° | 4p⁵(²P⁰ _{3/2})6p [½]₂ | 662019 | 743840 | 37 | 103 |
| 1217.91 | 3 | 3 | 662019 | 744128 | 17 | 103 |
| 1204.31 | 4 | 3 | 661091 | 744128 | 85 | 103 |
| 1213.59 | 4p⁵(²P⁰ _{1/2})5p [½]₂ | 4p⁵(²P⁰ _{3/2})5d [½]₁° | 576592 | 658992 | 1 | 103 |

Mo VII (Kr-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy | Levels (cm⁻¹) | Int. | Refs. | | |
|----------------|---------------------------|-------------------|---------------------------|-------------------|--------|--------|----|-----|
| 1210.05 | 4p⁵(²P _{3/2})5d | [½]₂ ^₀ | 4p⁵(²P _{3/2})6p | [½]₂ ^₁ | 661198 | 743840 | 2 | 103 |
| 1205.86 | | _₂ | | _₃ | 661198 | 744128 | 2 | 103 |
| 1201.21 | 4p⁵(²P _{1/2})5d | [½]₃ ^₀ | 4p⁵(²P _{1/2})6p | [½]₂ ^₁ | 686613 | 769856 | 9 | 103 |
| 1183.66 | | _₂ | | _₂ | 685377 | 769856 | 16 | 103 |
| 1170.56 | 4p⁵(²P _{1/2})5p | [½]₂ ^₁ | 4p⁵(²P _{3/2})5d | [½]₃ ^₀ | 576592 | 662019 | 65 | 103 |
| 1151.96 | 4p⁵(²P _{3/2})6p | [½]₀ ^₁ | 4p⁵(²P _{1/2})7s | [½]₁ ^₀ | 752533 | 839344 | 5 | 103 |
| 1007.27 | | _₁ | | _₀ | 739454 | 838733 | 2 | 103 |
| 1129.43 | 4p⁵(²P _{1/2})5p | [½]₁ ^₁ | 4p⁵(²P _{3/2})5d | [½]₂ ^₀ | 577141 | 665682 | 7 | 103 |
| 1122.43 | 4p⁵(²P _{1/2})5p | [½]₂ ^₁ | 4p⁵(²P _{3/2})5d | [½]₂ ^₀ | 576592 | 665682 | 2 | 103 |
| 1107.56 | | _₂ | | _₃ | 576592 | 666881 | 1 | 103 |
| 1113.19 | 4p⁵(²P _{1/2})5p | [½]₁ ^₀ | 4p⁵(²P _{3/2})5d | [½]₂ ^₁ | 571364 | 661198 | 8 | 103 |
| 1081.43 | | _₂ | | _₁ | 576592 | 669065 | 14 | 103 |
| 1023.55 | | _₁ | | _₁ | 571364 | 669065 | 2 | 103 |
| 1087.84 | 4p⁵(²P _{1/2})5p | [½]₁ ^₀ | 4p⁵(²P _{3/2})5d | [½]₁ ^₀ | 577141 | 669065 | 6 | 103 |
| 1075.93 | 4p⁵(²P _{3/2})6p | [½]₂ ^₀ | 4p⁵(²P _{1/2})7s | [½]₁ ^₀ | 746401 | 839344 | 9 | 103 |
| 1070.22 | | _₁ | | _₀ | 745292 | 838733 | 2 | 103 |
| 1063.23 | | _₁ | | _₁ | 745292 | 839344 | 2 | 103 |
| 1064.60 | 4p⁵(²P _{3/2})5s | [½]₂ ^₀ | 4p⁵(²P _{1/2})5p | [½]₁ ^₁ | 477429 | 571364 | 3 | 103 |
| 1008.40 | | _₂ | | _₂ | 477429 | 576592 | 4 | 103 |
| 1020.89 | 4p⁵(²P _{3/2})5d | [½]₂ ^₀ | 4p⁵(²P _{1/2})6p | [½]₁ ^₁ | 665682 | 763636 | 2 | 103 |
| 1002.90 | 4p⁵(²P _{3/2})5s | [½]₂ ^₀ | 4p⁵(²P _{1/2})5p | [½]₁ ^₀ | 477429 | 577141 | 5 | 103 |
| 967.729 | | _₁ | | _₀ | 481294 | 584632 | 5 | 103 |
| 992.123 | 4p⁵(²P _{3/2})5d | [½]₁ ^₀ | 4p⁵(²P _{1/2})6p | [½]₂ ^₁ | 669065 | 769856 | 17 | 103 |
| 976.168 | | _₂ | | _₁ | 661198 | 763636 | 9 | 103 |
| 920.332 | | _₂ | | _₂ | 661198 | 769856 | 4 | 103 |
| 979.551 | 4p⁵(²P _{3/2})5d | [½]₁ ^₀ | 4p⁵(²P _{1/2})6p | [½]₀ ^₁ | 669065 | 771155 | 9 | 103 |
| 971.279 | 4p⁵(²P _{3/2})5p | [½]₁ ^₁ | 4p⁵(²P _{3/2})5d | [½]₀ ^₁ | 554828 | 657783 | 14 | 103 |
| 955.632 | 4p⁵(²P _{3/2})5d | [½]₁ ^₀ | 4p⁵(²P _{1/2})6p | [½]₁ ^₁ | 658992 | 763636 | 1 | 103 |
| 902.033 | | _₁ | | _₂ | 658992 | 769856 | 7 | 103 |
| 953.098 | 4p⁵(²P _{1/2})6p | [½]₂ ^₀ | 4p⁵(²P _{3/2})8s | [½]₂ ^₁ | 769856 | 874776 | 6 | 103 |
| 899.737 | | _₁ | | _₂ | 763636 | 874776 | 2 | 103 |
| 950.955 | 4p⁵(²P _{1/2})5p | [½]₀ ^₁ | 4p⁵(²P _{3/2})5d | [½]₁ ^₀ | 584632 | 689788 | 6 | 103 |
| 887.727 | | _₁ | | _₁ | 577141 | 689788 | 17 | 103 |
| 940.137 | 4p⁵(²P _{3/2})5p | [½]₁ ^₁ | 4p⁵(²P _{3/2})5d | [½]₂ ^₀ | 554828 | 661198 | 2 | 103 |
| 896.522 | | _₂ | | _₁ | 557526 | 669065 | 2 | 103 |
| 875.397 | | _₁ | | _₁ | 554828 | 669065 | 7 | 103 |
| 935.548 | 4p⁵(²P _{3/2})5d | [½]₁ ^₀ | 4p⁵(²P _{1/2})6p | [½]₁ ^₁ | 658992 | 765875 | 6 | 103 |
| 925.143 | | _₀ | | _₁ | 657783 | 765875 | 6 | 103 |
| 891.539 | | _₁ | | _₀ | 658992 | 771155 | 4 | 103 |
| 927.326 | 4p⁵(²P _{3/2})5d | [½]₃ ^₀ | 4p⁵(²P _{1/2})6p | [½]₂ ^₁ | 662019 | 769856 | 5 | 103 |

Mo VII (Kr-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy | Levels (cm⁻¹) | Int. | Refs. |
|----------------|---------------------|----------------------|--------|---------------|------|-------|
| 924.553 | 4p⁵(²P⁰/₂)5p [³/₂]₂ | 4p⁵(²P⁰/₂)5d [⁵/₂]₂° | 557526 | 665682 | 8 | 103 |
| 923.944 | 4p⁵(²P¹/₂)5p [¹/₂]₁ | 4p⁵(²P¹/₂)5d [⁵/₂]₂° | 577141 | 685377 | 7 | 103 |
| 918.270 | 4p⁵(²P¹/₂)6p [¹/₂]₁ | 4p⁵(²P⁰/₂)8s [³/₂]₂° | 765875 | 874776 | 2 | 103 |
| 916.426 | 1 | 1 | 765875 | 874999 | 4 | 103 |
| 917.697 | 4p⁵(²P¹/₂)5p [¹/₂]₁ | 4p⁵(²P¹/₂)5d [³/₂]₂° | 577141 | 686105 | 7 | 103 |
| 913.131 | 4p⁵(²P¹/₂)5p [²/₂]₂ | 4p⁵(²P¹/₂)5d [³/₂]₂° | 576592 | 686105 | 4 | 103 |
| 883.465 | 2 | 1 | 576592 | 689788 | 1 | 103 |
| 871.525 | 1 | 2 | 571364 | 686105 | 2 | 103 |
| 909.395 | 4p⁵(²P⁰/₂)5p [⁵/₂]₃ | 4p⁵(²P⁰/₂)5d [⁷/₂]₄° | 551129 | 661091 | 49 | 103 |
| 901.838 | 3 | 3 | 551129 | 662019 | 30 | 103 |
| 880.231 | 2 | 3 | 548414 | 662019 | 64 | 103 |
| 908.920 | 4p⁵(²P¹/₂)5p [³/₂]₂ | 4p⁵(²P¹/₂)5d [⁵/₂]₃° | 576592 | 686613 | 5 | 103 |
| 877.066 | 1 | 2 | 571364 | 685377 | 2 | 103 |
| 908.477 | 4p⁵(²P⁰/₂)5p [⁵/₂]₃ | 4p⁵(²P⁰/₂)5d [³/₂]₂° | 551129 | 661198 | 8 | 103 |
| 886.619 | 2 | 2 | 548414 | 661198 | 8 | 103 |
| 874.934 | 4p⁵(²P⁰/₂)5p [¹/₂]₁ | 4p⁵(²P⁰/₂)5d [¹/₂]₀° | 543485 | 657783 | 4 | 103 |
| 872.977 | 4p⁵(²P⁰/₂)5p [⁵/₂]₃ | 4p⁵(²P⁰/₂)5d [⁵/₂]₂° | 551129 | 665682 | 4 | 103 |
| 863.914 | 3 | 3 | 551129 | 666881 | 55 | 103 |
| 852.735 | 2 | 2 | 548414 | 665682 | 21 | 103 |
| 849.506 | 4p⁵(²P⁰/₂)5p [¹/₂]₁ | 4p⁵(²P⁰/₂)5d [³/₂]₂° | 543485 | 661198 | 20 | 103 |
| 796.322 | 1 | 1 | 543485 | 669065 | 4 | 103 |
| 843.281 | 4s²4p⁵4d ¹P¹ | 4s4p⁶4d ³D₁ | 417544 | 536131 | 6 | 103 |
| 839.157 | 1 | 2 | 417544 | 536713 | 8 | 103 |
| 818.318 | 4p⁵(²P⁰/₂)5p [¹/₂]₁ | 4p⁵(²P⁰/₂)5d [⁵/₂]₂° | 543485 | 665682 | 3 | 103 |
| 802.016 | 4p⁵(²P⁰/₂)5p [¹/₂]₀ | 4p⁵(²P¹/₂)5d [³/₂]₁° | 565106 | 689788 | 4 | 103 |
| 791.133 | 1 | 2 | 543485 | 686105 | 6 | 103 |
| 794.027 | 4p⁵4d ¹P¹ | 4p⁵(²P⁰/₂)5p [¹/₂]₁ | 417544 | 543485 | 14 | 103 |
| 780.064 | 4p⁵(²P¹/₂)6p [³/₂]₂ | 4p⁵(²P¹/₂)8s [³/₂]₁° | 769856 | 898050 | 2 | 103 |
| 777.727 | 4p⁵(²P⁰/₂)5p [³/₂]₂ | 4p⁵(²P¹/₂)5d [³/₂]₂° | 557526 | 686105 | 2 | 103 |
| 740.922 | 1 | 1 | 554828 | 689788 | 17 | 103 |
| 777.595 | 4p⁵(²P⁰/₂)6p [³/₂]₂ | 4p⁵(²P⁰/₂)8s [³/₂]₁° | 746401 | 874999 | 6 | 103 |
| 770.974 | 1 | 1 | 745292 | 874999 | 6 | 103 |
| 774.669 | 4p⁵(²P⁰/₂)5p [³/₂]₂ | 4p⁵(²P¹/₂)5d [³/₂]₃° | 557526 | 686613 | 9 | 103 |
| 765.976 | 1 | 2 | 554828 | 685377 | 3 | 103 |
| 765.427 | 4p⁵(²P⁰/₂)6p [⁵/₂]₃ | 4p⁵(²P⁰/₂)8s [³/₂]₂° | 744128 | 874776 | 15 | 103 |
| 764.118 | 4p⁴d ¹P¹ | 4p⁵(²P⁰/₂)5p [⁵/₂]₂ | 417544 | 548414 | 6 | 103 |
| 758.545 | 4p⁵(²P¹/₂)5p [¹/₂]₁ | 4p⁵(²P⁰/₂)6s [³/₂]₂° | 577141 | 708975 | 8 | 103 |
| 752.320 | 1 | 1 | 577141 | 710068 | 4 | 103 |

Mo VII (Kr-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm⁻¹) | Int. | Refs. | |
|----------------|---------------------|----------------------|----------------------|--------|-------|-----|
| 756.566 | 4p⁵(²P¹/₂)6p [¹/₂]₁ | 4p⁵(²P¹/₂)8s [¹/₂]¹ | 765875 | 898050 | 6 | 103 |
| 755.423 | 4p⁵(²P¹/₂)5p [³/₂]₂ | 4p⁵(²P¹/₂)6s [¹/₂]² | 576592 | 708975 | 5 | 103 |
| 749.169 | 2 | 1 | 576592 | 710068 | 7 | 103 |
| 726.710 | 1 | 2 | 571364 | 708975 | 8 | 103 |
| 720.933 | 1 | 1 | 571364 | 710068 | 2 | 103 |
| 744.903 | 4p⁵(²P³/₂)5p [⁵/₂]₃ | 4p⁵(²P¹/₂)5d [⁵/₂]₂ | 551129 | 685377 | 82 | 103 |
| 738.105 | 3 | 3 | 551129 | 686613 | 8 | 103 |
| 723.573 | 2 | 3 | 548414 | 686613 | 7 | 103 |
| 738.989 | 4p⁵(²P³/₂)6p [¹/₂]₁ | 4p⁵(²P³/₂)8s [³/₂]² | 739454 | 874776 | 5 | 103 |
| 737.740 | 1 | 1 | 739454 | 874999 | 2 | 103 |
| 730.776 | 4s²4p⁵4d ¹P¹ | 4s4p⁶4d ¹D₂ | 417544 | 554385 | 8 | 103 |
| 728.418 | 4p⁵4d ¹P¹ | 4p⁵(²P³/₂)5p [³/₂]₁ | 417544 | 554828 | 4 | 103 |
| 714.367 | 1 | 2 | 417544 | 557526 | 4 | 103 |
| 709.525 | 4p⁵(²P¹/₂)6p [³/₂]₂ | 4p⁵(²P³/₂)9s [³/₂]¹ | 769856 | 910798 | 6 | 103 |
| 704.743 | 4p⁵(²P³/₂)5p [¹/₂]₁ | 4p⁵(²P¹/₂)5d [⁵/₂]₂ | 543485 | 685377 | 5 | 103 |
| 690.024 | 4p⁵(²P¹/₂)6p [¹/₂]₁ | 4p⁵(²P³/₂)9s [³/₂]¹ | 765875 | 910798 | 6 | 103 |
| 689.826 | 4p⁵(²P³/₂)5p [¹/₂]₀ | 4p⁵(²P³/₂)6s [³/₂]¹ | 565106 | 710068 | 17 | 103 |
| 600.305 | 1 | 1 | 543485 | 710068 | 32 | 103 |
| 676.010 | 4p⁵(²P¹/₂)5p [¹/₂]₀ | 4p⁵(²P¹/₂)6s [¹/₂]¹ | 584632 | 732560 | 17 | 103 |
| 647.408 | 1 | ₀ | 577141 | 731603 | 6 | 103 |
| 643.416 | 1 | ₁ | 577141 | 732560 | 9 | 103 |
| 655.549 | 4p⁵(²P³/₂)5p [³/₂]₂ | 4p⁵(²P³/₂)6s [³/₂]¹ | 557526 | 710068 | 85 | 103 |
| 648.477 | 4p⁵(²P³/₂)6p [⁵/₂]₂ | 4p⁵(²P¹/₂)8s [¹/₂]¹ | 743840 | 898050 | 6 | 103 |
| 628.745 | 4p⁵4d ¹P¹ | 4p⁵(²P¹/₂)5p [³/₂]₂ | 417544 | 576592 | 7 | 103 |
| 624.072 | 4p⁵(²P¹/₂)5p [³/₂]₁ | 4p⁵(²P¹/₂)6s [¹/₂]₀ | 571364 | 731603 | 16 | 103 |
| 620.344 | 1 | ₁ | 571364 | 732560 | 14 | 103 |
| 622.790 | 4p⁵(²P³/₂)5p [³/₂]₂ | 4p⁵(²P³/₂)6s [³/₂]² | 548414 | 708975 | 2 | 103 |
| 607.344 | 4p⁵(²P¹/₂)6p [³/₂]₂ | 4p⁵(²P¹/₂)10s [¹/₂]¹ | 769856 | 934507 | 6 | 103 |
| 598.944 | 4p⁵(²P³/₂)6p [⁵/₂]₂ | 4p⁵(²P³/₂)9s [³/₂]¹ | 743840 | 910798 | 8 | 103 |
| 571.341 | 4p⁵(²P³/₂)5p [³/₂]₂ | 4p⁵(²P¹/₂)6s [¹/₂]¹ | 557526 | 732560 | 8 | 103 |
| 565.697 | 1 | ₀ | 554828 | 731603 | 5 | 103 |
| 562.648 | 1 | ₁ | 554828 | 732560 | 7 | 103 |
| 534.812 | 4s²4p⁵4d ¹F³ | 4s4p⁶4d ³D₃ | 351406 | 538386 | 8 | 103 |
| 531.631 | 4p⁵(²P³/₂)6p [³/₂]₂ | 4p⁵(²P¹/₂)10s [¹/₂]¹ | 746401 | 934507 | 9 | 103 |
| 531.574 | 4p⁵(²P³/₂)5p [¹/₂]₁ | 4p⁵(²P¹/₂)6s [¹/₂]₀ | 543485 | 731603 | 8 | 103 |
| 524.459 | 4p⁵(²P³/₂)6p [³/₂]₂ | 4p⁵(²P¹/₂)10s [¹/₂]¹ | 743840 | 934507 | 2 | 103 |

Mo VII (Kr-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm⁻¹) | Int. | Refs. |
|----------------|---|--|----------------------|------|-------|
| 512.810 | $4s^2 4p^5 4d \ ^3D_1^o$ | $4s 4p^6 4d \ ^3D_2$ | 341710 536713 | 4 | 103 |
| 492.720 | $_3$ | $_3$ | 335441 538386 | 50 | 103 |
| 511.822 | $4s^2 4p^5 4d \ ^1D_2^o$ | $4s 4p^6 4d \ ^3D_1$ | 340749 536131 | 6 | 103 |
| 505.976 | $_2$ | $_3$ | 340749 538386 | 16 | 103 |
| 508.767 | $4p^5 4d \ ^3D_2^o$ | $4p^5 (^2P_{3/2}^o) 5p \ [{}^1_2]_1$ | 346922 543485 | 21 | 103 |
| 495.611 | $_1$ | $_1$ | 341710 543485 | 8 | 103 |
| 447.644 | $_1$ | $_0$ | 341710 565106 | 29 | 103 |
| 500.709 | $4p^5 4d \ ^1F_3^o$ | $4p^5 (^2P_{3/2}^o) 5p \ [{}^5_2]_3$ | 351406 551129 | 9 | 103 |
| 489.714 | $4p^5 4d \ ^3D_2^o$ | $4p^5 (^2P_{3/2}^o) 5p \ [{}^5_2]_3$ | 346922 551129 | 34 | 103 |
| 469.547 | $_3$ | $_2$ | 335441 548414 | 44 | 103 |
| 463.614 | $_3$ | $_3$ | 335441 551129 | 24 | 103 |
| 487.734 | $4s^2 4p^5 (^2P_{1/2}^o) 5p \ [{}^1_2]_0$ | $4s 4p^6 5p \ ^1P_1^o$ | 584632 789669 | 5 | 103 |
| 484.720 | $4p^5 (^2P_{1/2}^o) 5p \ [{}^1_2]_0$ | $4p^5 (^2P_{3/2}^o) 6d \ [{}^1_2]_1^o$ | 584632 790938 | 9 | 103 |
| 469.331 | $_1$ | $_0$ | 577141 790221 | 18 | 103 |
| 467.735 | $_1$ | $_1$ | 577141 790938 | 18 | 103 |
| 478.410 | $4s^2 4p^5 (^2P_{1/2}^o) 5p \ [{}^3_2]_1$ | $4s 4p^6 5p \ ^3P_1^o$ | 571364 780390 | 10 | 103 |
| 469.331 | $4s^2 4p^5 (^2P_{1/2}^o) 5p \ [{}^3_2]_2$ | $4s 4p^6 5p \ ^1P_1^o$ | 576592 789669 | 18 | 103 |
| 469.229 | $4p^5 4d \ ^3D_1^o$ | $4p^5 (^2P_{3/2}^o) 5p \ [{}^3_2]_1$ | 341710 554828 | 5 | 103 |
| 463.333 | $_1$ | $_2$ | 341710 557526 | 13 | 103 |
| 450.305 | $_3$ | $_2$ | 335441 557526 | 46 | 103 |
| 468.072 | $4s^2 4p^5 4d \ ^1D_2^o$ | $4s 4p^6 4d \ ^1D_2$ | 340749 554385 | 6 | 103 |
| 465.506 | $4s^2 4p^5 4d \ ^3F_2^o$ | $4s 4p^6 4d \ ^3D_2$ | 321895 536713 | 28 | 103 |
| 446.228 | $_4$ | $_3$ | 314277 538386 | 80 | 103 |
| 463.544 | $4p^5 (^2P_{1/2}^o) 5p \ [{}^3_2]_2$ | $4p^5 (^2P_{3/2}^o) 6d \ [{}^7_2]_3^o$ | 576592 792321 | 24 | 103 |
| 463.333 | $4p^5 (^2P_{1/2}^o) 5p \ [{}^3_2]_2$ | $4p^5 (^2P_{3/2}^o) 6d \ [{}^3_2]_2^o$ | 576592 792410 | 13 | 103 |
| 452.420 | $_1$ | $_2$ | 571364 792410 | 9 | 103 |
| 461.282 | $4p^5 4d \ ^1D_2^o$ | $4p^5 (^2P_{3/2}^o) 5p \ [{}^3_2]_2$ | 340749 557526 | 9 | 103 |
| 461.041 | $4p^5 (^2P_{1/2}^o) 5p \ [{}^1_2]_1$ | $4p^5 (^2P_{3/2}^o) 6d \ [{}^5_2]_2^o$ | 577141 794042 | 5 | 103 |
| 459.882 | $4p^5 (^2P_{1/2}^o) 5p \ [{}^3_2]_2$ | $4p^5 (^2P_{3/2}^o) 6d \ [{}^5_2]_2^o$ | 576592 794042 | 28 | 103 |
| 458.843 | $_2$ | $_3$ | 576592 794526 | 10 | 103 |
| 456.911 | $4p^5 (^2P_{1/2}^o) 5p \ [{}^3_2]_1$ | $4p^5 (^2P_{3/2}^o) 6d \ [{}^1_2]_0$ | 571364 790221 | 20 | 103 |
| 455.421 | $_1$ | $_1$ | 571364 790938 | 5 | 103 |
| 451.306 | $4p^5 4d \ ^3F_2^o$ | $4p^5 (^2P_{3/2}^o) 5p \ [{}^1_2]_1$ | 321895 543485 | 10 | 103 |
| 444.074 | $4p^5 4d \ ^1F_3^o$ | $4p^5 (^2P_{1/2}^o) 5p \ [{}^3_2]_2$ | 351406 576592 | 80 | 103 |
| 443.035 | $4s^2 4p^5 4d \ ^3P_2^o$ | $4s 4p^6 4d \ ^3D_1$ | 310426 536131 | 8 | 103 |
| 441.903 | $_2$ | $_2$ | 310426 536713 | 9 | 103 |
| 438.688 | $_2$ | $_3$ | 310426 538386 | 9 | 103 |
| 433.736 | $_1$ | $_1$ | 305564 536131 | 7 | 103 |
| 442.483 | $4s 4p^6 4d \ ^1D_2$ | $4s 4p^6 5p \ ^3P_1^o$ | 554385 780390 | 9 | 103 |

Mo VII (Kr-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm⁻¹) | | Int. | Refs. | | |
|----------------|----------------|---------|----------------------|---------|--------|--------|----|-----|
| 441.449 | 4p⁵4d | ³F₂° | 4p⁵(²P₃/₂)5p | [⁵/₂]₂ | 321895 | 548814 | 85 | 103 |
| 434.138 | | ₃ | | ₂ | 318063 | 548414 | 68 | 103 |
| 429.058 | | ₃ | | ₃ | 318063 | 551129 | 32 | 103 |
| 422.210 | | ₄ | | ₃ | 314277 | 551129 | 90 | 103 |
| 435.444 | 4p⁵4d | ³D₁° | 4p⁵(²P₁/₂)5p | [¹/₂]₁ | 341710 | 571364 | 8 | 103 |
| 425.754 | | ₁ | | ₂ | 341710 | 576592 | 9 | 103 |
| 414.693 | | ₃ | | ₂ | 335441 | 576592 | 21 | 103 |
| 434.351 | 4p⁵4d | ³D₂° | 4p⁵(²P₁/₂)5p | [¹/₂]₁ | 346922 | 577141 | 72 | 103 |
| 424.754 | | ₁ | | ₁ | 341710 | 577141 | 24 | 103 |
| 433.631 | 4p⁵4d | ¹D₂° | 4p⁵(²P₁/₂)5p | [³/₂]₁ | 340749 | 571364 | 8 | 103 |
| 424.035 | | ₂ | | ₂ | 340749 | 576592 | 10 | 103 |
| 431.430 | 4p⁵(²P₁/₂)5p | [¹/₂]₀ | 4p⁵(²P₃/₂)7s | [³/₂]₀° | 584632 | 816418 | 9 | 103 |
| 429.306 | 4p⁵4d | ³F₂° | 4p⁵(²P₃/₂)5p | [³/₂]₁ | 321895 | 554828 | 37 | 103 |
| 429.058 | 4p⁵4d | ³P₂° | 4p⁵(²P₃/₂)5p | [¹/₂]₁ | 310426 | 543485 | 32 | 103 |
| 420.309 | | ₁ | | ₁ | 305564 | 543485 | 14 | 103 |
| 413.779 | | ₀ | | ₁ | 301803 | 543485 | 9 | 103 |
| 425.736 | 4p⁵(²P₃/₂)5p | [³/₂]₂ | 4p⁵(²P₃/₂)6d | [³/₂]₂° | 557526 | 792410 | 9 | 103 |
| 423.170 | 4s²4p⁴4d | ³F₃° | 4s4p⁶4d | ¹D₂ | 318063 | 554385 | 44 | 103 |
| 422.789 | 4p⁵(²P₃/₂)5p | [³/₂]₂ | 4p⁵(²P₃/₂)6d | [⁵/₂]₂° | 557526 | 794042 | 9 | 103 |
| 421.948 | | ₂ | | ₃ | 557526 | 794526 | 20 | 103 |
| 422.789 | 4p⁵(²P₁/₂)5s | [¹/₂]₁° | 4p⁵(²P₃/₂)6p | [¹/₂]₁ | 502931 | 739454 | 9 | 103 |
| 400.615 | | ₁ | | ₀ | 502931 | 752533 | 17 | 103 |
| 419.940 | 4p⁵(²P₁/₂)5p | [¹/₂]₁ | 4p⁵(²P₁/₂)6d | [⁵/₂]₂° | 577141 | 815261 | 8 | 103 |
| 418.991 | 4p⁵(²P₁/₂)5p | [³/₂]₂ | 4p⁵(²P₁/₂)6d | [⁵/₂]₂° | 576592 | 815261 | 8 | 103 |
| 409.998 | | ₁ | | ₂ | 571364 | 815261 | 19 | 103 |
| 418.857 | 4p⁵(²P₁/₂)5p | [³/₂]₂ | 4p⁵(²P₃/₂)7s | [³/₂]₂° | 576592 | 815350 | 15 | 103 |
| 415.070 | 4p⁵(²P₁/₂)5s | [¹/₂]₁° | 4p⁵(²P₃/₂)6p | [⁵/₂]₂ | 502931 | 743840 | 1 | 103 |
| 414.955 | 4p⁵(²P₃/₂)5p | [⁵/₂]₃ | 4p⁵(²P₃/₂)6d | [⁷/₂]₄° | 551129 | 792121 | 32 | 103 |
| 414.622 | | ₃ | | ₃ | 551129 | 792321 | 7 | 103 |
| 409.998 | | ₂ | | ₃ | 548414 | 792321 | 19 | 103 |
| 410.371 | 4s4p⁶4d | ³D₂ | 4s4p⁶5p | ³P₁° | 536713 | 780390 | 15 | 103 |
| 409.905 | 4s²4p⁴4d | ³P₂° | 4s4p⁶4d | ¹D₂ | 310426 | 554385 | 5 | 103 |
| 401.903 | | ₁ | | ₂ | 305564 | 554385 | 9 | 103 |
| 409.180 | 4p⁵4d | ³P₂° | 4p⁵(²P₃/₂)5p | [³/₂]₁ | 310426 | 554828 | 7 | 103 |
| 404.711 | | ₂ | | ₂ | 310426 | 557526 | 8 | 103 |
| 401.175 | | ₁ | | ₁ | 305564 | 554828 | 28 | 103 |
| 395.216 | | ₀ | | ₁ | 301803 | 554828 | 8 | 103 |
| 407.115 | 4p⁵(²P₃/₂)5p | [⁵/₂]₂ | 4p⁵(²P₃/₂)6d | [⁵/₂]₂° | 548414 | 794042 | 9 | 103 |
| 400.869 | 4p⁵4d | ³F₂° | 4p⁵(²P₁/₂)5p | [³/₂]₁ | 321895 | 571364 | 18 | 103 |
| 386.792 | | ₃ | | ₂ | 318063 | 576592 | 6 | 103 |

Mo VII (Kr-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm⁻¹) | | Int. | Refs. |
|----------------|----------------------------------|----------------------------------|----------------------|--------|------|-------|
| 399.110 | 4p⁵(²P⁰ _{3/2})5p [½]₁ | 4p⁵(²P⁰ _{3/2})6d [½]₂° | 543485 | 794042 | 17 | 103 |
| 396.722 | 4p⁵(²P⁰ _{3/2})5p [½]₁ | 4p⁵(²P⁰ _{3/2})6d [½]₁° | 543485 | 795532 | 16 | 103 |
| 395.315 | 4s4p⁶4d ³D₂ | 4s4p⁶5p ¹P₁ | 536713 | 789669 | 2 | 103 |
| 394.451 | 1 | 1 | 536131 | 789669 | 2 | 103 |
| 387.993 | 4p⁵(²P⁰ _{3/2})5p [½]₂ | 4p⁵(²P⁰ _{1/2})6d [½]₂° | 557526 | 815261 | 9 | 103 |
| 386.792 | 2 | 3 | 557526 | 816059 | 6 | 103 |
| 387.850 | 4p⁵(²P⁰ _{3/2})5p [½]₂ | 4p⁵(²P⁰ _{3/2})7s [½]₂° | 557526 | 815350 | 8 | 103 |
| 382.281 | 1 | 1 | 554828 | 816418 | 14 | 103 |
| 385.427 | 4p⁵(²P⁰ _{3/2})5p [½]₂ | 4p⁵(²P⁰ _{1/2})6d [½]₁° | 557526 | 816964 | 22 | 103 |
| 383.699 | 1 | 2 | 554828 | 815427 | 8 | 103 |
| 381.481 | 1 | 1 | 554828 | 816964 | 7 | 103 |
| 385.286 | 4p⁵4d ³P₁ | 4p⁵(²P⁰ _{3/2})5p [½]₀ | 305564 | 565106 | 37 | 103 |
| 383.554 | 4p⁵(²P⁰ _{1/2})5s [½]₁° | 4p⁵(²P⁰ _{1/2})6p [½]₁ | 502931 | 763636 | 17 | 103 |
| 380.225 | 0 | 1 | 500637 | 763636 | 10 | 103 |
| 383.215 | 4p⁵4d ³P₂ | 4p⁵(²P⁰ _{1/2})5p [½]₁ | 310426 | 571364 | 19 | 103 |
| 376.223 | 1 | 1 | 305564 | 571364 | 15 | 103 |
| 375.703 | 2 | 2 | 310426 | 576592 | 20 | 103 |
| 370.953 | 0 | 1 | 301803 | 571364 | 19 | 103 |
| 368.971 | 1 | 2 | 305564 | 576592 | 14 | 103 |
| 382.281 | 4p⁵(²P⁰ _{1/2})5p [½]₁ | 4p⁵(²P⁰ _{1/2})7s [½]₀° | 577141 | 838733 | 14 | 103 |
| 381.651 | 4p⁵(²P⁰ _{3/2})5s [½]₂° | 4p⁵(²P⁰ _{3/2})6p [½]₁ | 477429 | 739454 | 10 | 103 |
| 368.670 | 1 | 0 | 481297 | 752533 | 10 | 103 |
| 380.865 | 4p⁵(²P⁰ _{3/2})5s [½]₁° | 4p⁵(²P⁰ _{3/2})6p [½]₂ | 481297 | 743840 | 9 | 103 |
| 375.359 | 2 | 2 | 477429 | 743840 | 9 | 103 |
| 374.967 | 2 | 3 | 477429 | 744128 | 2 | 103 |
| 380.553 | 4p⁵(²P⁰ _{1/2})5p [½]₂ | 4p⁵(²P⁰ _{1/2})7s [½]₁° | 576592 | 839344 | 7 | 103 |
| 378.804 | 4p⁵(²P⁰ _{3/2})5s [½]₁° | 4p⁵(²P⁰ _{3/2})6p [½]₁ | 481297 | 745292 | 8 | 103 |
| 377.204 | 1 | 2 | 481297 | 746401 | 17 | 103 |
| 378.475 | 4p⁵(²P⁰ _{3/2})5p [½]₃ | 4p⁵(²P⁰ _{3/2})7s [½]₂° | 551129 | 815350 | 9 | 103 |
| 378.354 | 4p⁵(²P⁰ _{3/2})5p [½]₃ | 4p⁵(²P⁰ _{1/2})6d [½]₂ | 551129 | 815427 | 10 | 103 |
| 372.349 | 2 | 1 | 548414 | 816964 | 8 | 103 |
| 373.621 | 4p⁵(²P⁰ _{3/2})5p [½]₂ | 4p⁵(²P⁰ _{1/2})6d [½]₃° | 548414 | 816059 | 8 | 103 |
| 368.246 | 4p⁵4d ³P₁ | 4p⁵(²P⁰ _{1/2})5p [½]₁ | 305564 | 577141 | 8 | 103 |
| 363.200 | 0 | 1 | 301803 | 577141 | 18 | 103 |
| 358.333 | 1 | 0 | 305564 | 584632 | 18 | 103 |
| 367.728 | 4p⁵(²P⁰ _{3/2})5p [½]₁ | 4p⁵(²P⁰ _{1/2})6d [½]₂° | 543485 | 815427 | 20 | 103 |
| 365.651 | 1 | 1 | 543485 | 816964 | 18 | 103 |
| 366.389 | 4p⁵(²P⁰ _{3/2})5p [½]₁ | 4p⁵(²P⁰ _{3/2})7s [½]₁° | 543485 | 816418 | 8 | 103 |
| 352.235 | 4p⁵(²P⁰ _{3/2})5p [½]₁ | 4p⁵(²P⁰ _{1/2})7s [½]₀ | 554828 | 838733 | 9 | 103 |
| 351.461 | 1 | 1 | 554828 | 839344 | 6 | 103 |

Mo VII (Kr-Sequence) - Continued

| Wavelength (Å) | Classification | | Energy Levels (cm⁻¹) | Int. | Refs. | |
|----------------|------------------------------|-------------------------------|----------------------|--------|-------|---------------|
| 349.418 | $4p^5(^2P_{3/2})5s [^3_2]^o$ | $4p^5(^2P_{1/2})6p [^1_2]_1$ | 477429 | 763636 | 8 | 103 |
| 344.993 | $4p^5(^2P_{3/2})5s [^3_2]^o$ | $4p^5(^2P_{1/2})6p [^1_2]_0$ | 481297 | 771155 | 16 | 103 |
| 338.682 | $4p^5(^2P_{3/2})5p [^1_2]_1$ | $4p^5(^2P_{1/2})7s [^1_2]_0$ | 543485 | 838733 | 2 | 103 |
| 335.990 | $4p^5(^2P_{1/2})5p [^1_2]_1$ | $4p^5(^2P_{3/2})8s [^3_2]^o$ | 577141 | 874776 | 10 | 103 |
| 335.730 | | | 577141 | 874999 | 16 | 103 |
| 329.594 | $4p^5(^2P_{1/2})5p [^3_2]_1$ | $4p^5(^2P_{3/2})8s [^3_2]^o$ | 571364 | 874776 | 4 | 103 |
| 327.262 | $4p^6 ^1S_0$ | $4p^5 4d ^3P^o$ | 0 | 305564 | 78 | 22,47,79,103° |
| 311.079 | $4p^5(^2P_{1/2})5p [^3_2]_2$ | $4p^5(^2P_{1/2})8s [^1_2]_0$ | 576592 | 898050 | 9 | 103 |
| 308.960 | $4p^5(^2P_{3/2})5p [^1_2]_3$ | $4p^5(^2P_{3/2})8s [^3_2]^o$ | 551129 | 874776 | 8 | 103 |
| 306.418 | | | 548414 | 874776 | 6 | 103 |
| 305.105 | $4p^5 4d ^1P^o_1$ | $4p^5(^2P_{3/2})6p [^3_2]_1$ | 417544 | 745292 | 8 | 103 |
| 292.646 | $4p^6 ^1S_0$ | $4p^5 4d ^3D^o$ | 0 | 341710 | 78 | 22,79,103° |
| 291.340 | $4p^5(^2P_{3/2})5p [^3_2]_1$ | $4p^5(^2P_{1/2})8s [^1_2]_0$ | 554828 | 898050 | 8 | 103 |
| 287.080 | $4p^5 4d ^1P^o_1$ | $4p^5(^2P_{1/2})6p [^1_2]_1$ | 417544 | 765875 | 2 | 103 |
| 283.828 | $4p^5 4d ^1P^o_1$ | $4p^5(^2P_{1/2})6p [^3_2]_2$ | 417544 | 769856 | 2 | 103 |
| 282.027 | $4p^5(^2P_{3/2})5p [^1_2]_1$ | $4p^5(^2P_{1/2})8s [^1_2]_0$ | 543485 | 898050 | 6 | 103 |
| 239.499 | $4p^6 ^1S_0$ | $4p^5 4d ^1P^o_1$ | 0 | 417544 | 300 | 22,79° |
| 207.773 | $4p^6 ^1S_0$ | $4p^5(^2P_{3/2})5s [^3_2]^o$ | 0 | 481294 | 150 | 22,27,79° |
| 198.835 | $4p^6 ^1S_0$ | $4p^5(^2P_{1/2})5s [^1_2]_0$ | 0 | 502931 | 125 | 22,27,79° |
| 151.747 | $4p^6 ^1S_0$ | $4p^5(^2P_{3/2})5d [^1_2]_0$ | 0 | 658992 | 1 | 22,79° |
| 149.462 | $4p^6 ^1S_0$ | $4p^5(^2P_{3/2})5d [^3_2]^o$ | 0 | 669065 | 40 | 22,79° |
| 144.974 | $4p^6 ^1S_0$ | $4p^5(^2P_{1/2})5d [^3_2]^o$ | 0 | 689788 | 40 | 79 |
| 140.833 | $4p^6 ^1S_0$ | $4p^5(^2P_{3/2})6s [^3_2]^o$ | 0 | 710068 | 40 | 22,79° |
| 136.507 | $4p^6 ^1S_0$ | $4p^5(^2P_{1/2})6s [^1_2]_0$ | 0 | 732560 | 20 | 22,79° |
| 128.141 | $4p^6 ^1S_0$ | $4s4p^6 5p ^3P^o$ | 0 | 780390 | 1 | 79 |
| 126.631 | $4p^6 ^1S_0$ | $4s4p^6 5p ^1P^o$ | 0 | 789669 | 5 | 79 |
| 125.704 | $4p^6 ^1S_0$ | $4p^5(^2P_{3/2})6d [^3_2]^o$ | 0 | 795532 | 1 | 79 |
| 122.487 | $4p^6 ^1S_0$ | $4p^5(^2P_{3/2})7s [^3_2]^o$ | 0 | 816418 | 4 | 79 |
| 119.141 | $4p^6 ^1S_0$ | $4p^5(^2P_{1/2})7s [^1_2]_0$ | 0 | 839344 | 2 | 79 |
| 114.286 | $4p^6 ^1S_0$ | $4p^5(^2P_{3/2})8s [^3_2]^o$ | 0 | 874999 | 2 | 79 |
| 111.347 | $4p^6 ^1S_0$ | $4p^5(^2P_{1/2})8s [^1_2]_0$ | 0 | 898050 | 0.4 | 79 |
| 109.790 | $4p^6 ^1S_0$ | $4p^5(^2P_{3/2})9s [^3_2]^o$ | 0 | 910798 | 1 | 79 |
| 107.005 | $4p^6 ^1S_0$ | $4p^5(^2P_{3/2})10s [^3_2]^o$ | 0 | 934507 | 1 | 79 |

Mo VIII (Br-Sequence) IP = $1157900 \pm 8000 \text{ cm}^{-1}$ ($143.56 \pm 1.00 \text{ eV}$)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. | |
|----------------|---|--|-----------------------------------|--------|-------|-------------------------|
| 474.941 | 4s ² 4p ⁵ 2P _{1/2} | 4s4p ⁶ 2S _{1/2} | 23274 | 233830 | 100 | 24 ^A ,27° |
| 427.660 | 3/2 | 1/2 | 0 | 233830 | 160 | 24 ^A ,27°,47 |
| 325.176 | 4p ⁵ 2P _{1/2} | 4p ⁴ (¹ D)4d 2P _{1/2} | 23274 | 330800 | 8 | 24,43° |
| 307.166 | 1/2 | 3/2 | 23274 | 348832 | 5 | 24,43° |
| 286.670 | 3/2 | 3/2 | 0 | 348832 | 2 | 24,43° |
| 323.940 | 4p ⁵ 2P _{3/2} | 4p ⁴ (³ P)4d 4D _{5/2} | 0 | 308699 | 30 | 43 |
| 322.645 | 3/2 | 3/2 | 0 | 309938 | 10 | 43 |
| 318.822 | 4p ⁵ 2P _{1/2} | 4p ⁴ (³ P)4d 4P _{1/2} | 23274 | 336936 | 3 | 24,43° |
| 316.210 | 1/2 | 3/2 | 23274 | 339525 | 2 | 43 |
| 296.786 | 3/2 | 1/2 | 0 | 336936 | 50 | 24,43° |
| 294.526 | 3/2 | 3/2 | 0 | 339525 | 60 | 43 |
| 288.838 | 3/2 | 5/2 | 0 | 346215 | 100 | 24,43° |
| 314.379 | 4p ⁵ 2P _{1/2} | 4p ⁴ (¹ D)4d 2D _{3/2} | 23274 | 341362 | 35 | 24,43° |
| 292.943 | 3/2 | 3/2 | 0 | 341362 | 75 | 24,43° |
| 283.167 | 3/2 | 5/2 | 0 | 353148 | 85 | 43 |
| 297.918 | 4p ⁵ 2P _{3/2} | 4p ⁴ (³ P)4d 4F _{3/2} | 0 | 335663 | 75 | 24,43° |
| 295.910 | 3/2 | 5/2 | 0 | 337941 | 150 | 24,43° |
| 279.477 | 4p ⁵ 2P _{3/2} | 4p ⁴ (³ P)4d 2F _{5/2} | 0 | 357811 | 75 | 24,43° |
| 269.352 | 4p ⁵ 2P _{1/2} | 4p ⁴ (¹ S)4d 2D _{3/2} | 23274 | 394545 | 15 | 24,43° |
| 253.457 | 3/2 | 3/2 | 0 | 394545 | 30 | 24,43° |
| 246.973 | 3/2 | 5/2 | 0 | 404903 | 50 | 24,43° |
| 269.294 | 4p ⁵ 2P _{3/2} | 4p ⁴ (¹ D)4d 2F _{5/2} | 0 | 371341 | 50 | 24,43° |
| 257.597 | 4p ⁵ 2P _{1/2} | 4p ⁴ (¹ D)4d 2S _{1/2} | 23274 | 411512 | 30 | 24,43° |
| 243.006 | 3/2 | 1/2 | 0 | 411512 | 200 | 24,43° |
| 251.085 | 4p ⁵ 2P _{1/2} | 4p ⁴ (³ P)4d 2P _{3/2} | 23274 | 421559 | 2 | 43 |
| 245.276 | 1/2 | 1/2 | 23274 | 430969 | 100 | 43 |
| 237.215 | 3/2 | 3/2 | 0 | 421559 | 700 | 43 |
| 232.040 | 3/2 | 1/2 | 0 | 430969 | 50 | 43 |
| 235.510 | 4p ⁵ 2P _{1/2} | 4p ⁴ (³ P)4d 2D _{3/2} | 23274 | 447876 | 500 | 43 |
| 234.314 | 3/2 | 5/2 | 0 | 426778 | 900 | 24,43° |
| 223.280 | 3/2 | 3/2 | 0 | 447876 | 15 | 43 |
| 198.367 | 4p ⁵ 2P _{1/2} | 4p ⁴ (³ P ₂)5s (2, ₁ ¹) _{3/2} | 23274 | 527389 | 4 | 24,43° |
| 191.769 | 3/2 | 5/2 | 0 | 521461 | 90 | 24,43° |
| 189.614 | 3/2 | 3/2 | 0 | 527389 | 100 | 24,43° |
| 192.286 | 4p ⁵ 2P _{1/2} | 4p ⁴ (³ P ₁)5s (1, ₂ ¹) _{3/2} | 23274 | 543336 | 5 | 24,43° |
| 190.241 | 1/2 | 1/2 | 23274 | 548923 | 25 | 24,43° |
| 184.047 | 3/2 | 3/2 | 0 | 543336 | 75 | 24,43° |
| 182.175 | 3/2 | 1/2 | 0 | 548923 | 20 | 24,43° |
| 186.377 | 4p ⁵ 2P _{1/2} | 4p ⁴ (¹ D ₂)5s (2, ₂ ¹) _{3/2} | 23274 | 559813 | 75 | 24,43° |
| 178.951 | 3/2 | 5/2 | 0 | 558812 | 100 | 24,43° |
| 178.634 | 3/2 | 3/2 | 0 | 559813 | 3 | 43 |
| 185.621 | 4p ⁵ 2P _{3/2} | 4p ⁴ (³ P ₀)5s (0, ₂ ¹) _{1/2} | 0 | 538732 | 25 | 24,43° |
| 174.656 | 4p ⁵ 2P _{1/2} | 4p ⁴ (¹ S ₀)5s (0, ₂ ¹) _{1/2} | 23274 | 595829 | 75 | 24,43° |
| 167.833 | 3/2 | 1/2 | 0 | 595829 | 20 | 43 |

Mo VIII (Br-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm⁻¹) | Int. | Refs. | |
|----------------|----------------------|---|----------------------|--------|-------|--------|
| 141.287 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^3P)5d \ ^2D_{3/2}$ | 23274 | 731073 | 1 | 25 |
| 136.782 | $3/2$ | $3/2$ | 0 | 731073 | 4 | 25 |
| 138.520 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^3P)5d \ ^4P_{3/2}$ | 23274 | 745165 | 3 | 25 |
| 134.203 | $3/2$ | $3/2$ | 0 | 745165 | 11 | 25 |
| 133.661 | $3/2$ | $5/2$ | 0 | 748161 | 2 | 25 |
| 137.425 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^3P)5d \ ^2P_{3/2}$ | 23274 | 750937 | 6 | 25 |
| 133.168 | $3/2$ | $3/2$ | 0 | 750937 | 1 | 25 |
| 136.898 | $4p^5 \ ^2P_{3/2}^o$ | $4p^4(^3P)5d \ ^4P_{1/2}$ | 0 | 730472 | 2 | 25 |
| 136.357 | $4p^5 \ ^2P_{3/2}^o$ | $4p^4(^3P)5d \ ^2D_{5/2}$ | 0 | 733372 | 6 | 25 |
| 135.902 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^1D)5d \ ^2S_{1/2}$ | 23274 | 759112 | 1 | 25 |
| 131.730 | $3/2$ | $1/2$ | 0 | 759112 | 1 | 25 |
| 135.378 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^1D)5d \ ^2P_{3/2}$ | 23274 | 761941 | 1 | 25 |
| 131.245 | $3/2$ | $3/2$ | 0 | 761941 | 1 | 25 |
| 134.852 | $4p^5 \ ^2P_{3/2}^o$ | $4p^4(^3P)5d \ ^4F_{3/2}$ | 0 | 741552 | 1 | 25 |
| 134.362 | $3/2$ | $5/2$ | 0 | 744258 | 1 | 25 |
| 134.428 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^1D)5d \ ^2D_{3/2}$ | 23274 | 767167 | 9 | 25 |
| 131.059 | $3/2$ | $5/2$ | 0 | 763015 | 1 | 25 |
| 133.854 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^1D)5d \ ^2P_{1/2}$ | 23274 | 770370 | 1 | 25 |
| 129.806 | $3/2$ | $1/2$ | 0 | 770370 | 4 | 25 |
| 133.417 | $4p^5 \ ^2P_{3/2}^o$ | $4p^4(^3P)5d \ ^2F_{5/2}$ | 0 | 749531 | 1 | 25 |
| 130.758 | $4p^5 \ ^2P_{3/2}^o$ | $4p^4(^1D)5d \ ^2F_{5/2}$ | 0 | 764770 | 1 | 25 |
| 130.111 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^3P_2)6s \ (2,\frac{1}{2})_{3/2}$ | 23274 | 791823 | 1 | 25 |
| 126.634 | $3/2$ | $5/2$ | 0 | 789754 | 8 | 25 |
| 126.296 | $3/2$ | $3/2$ | 0 | 791823 | 10 | 25 |
| 128.688 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^1S)5d \ ^2D_{3/2}$ | 23274 | 800351 | 5 | 25 |
| 125.191 | $3/2$ | $5/2$ | 0 | 798781 | 1 | 25 |
| 127.662 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^3P_0)6s \ (0,\frac{1}{2})_{1/2}$ | 23274 | 806614 | 1 | 25 |
| 123.973 | $3/2$ | $1/2$ | 0 | 806614 | 3 | 25 |
| 127.058 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^3P_1)6s \ (1,\frac{1}{2})_{3/2}$ | 23274 | 810363 | 3 | 25 |
| 126.747 | $1/2$ | $1/2$ | 23274 | 812274 | 6 | 25 |
| 123.394 | $3/2$ | $3/2$ | 0 | 810363 | 5 | 25 |
| 123.108 | $3/2$ | $1/2$ | 0 | 812274 | 4 | 25 |
| 124.561 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^1D_2)6s \ (2,\frac{1}{2})_{3/2}$ | 23274 | 826096 | 4 | 25,60° |
| 121.080 | $3/2$ | $5/2$ | 0 | 825900 | 7 | 25,60° |
| 119.114 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^1S_0)6s \ (0,\frac{1}{2})_{1/2}$ | 23274 | 862803 | 5 | 25 |
| 115.902 | $3/2$ | $1/2$ | 0 | 862803 | 1 | 25 |
| 115.109 | $4p^5 \ ^2P_{1/2}^o$ | $4p^4(^3P)6d \ ^2D_{3/2}$ | 23274 | 891999 | 1 | 25 |
| 112.254 | $3/2$ | $5/2$ | 0 | 890834 | 5 | 25 |
| 112.110 | $3/2$ | $3/2$ | 0 | 891999 | 2 | 25 |

Mo VIII (Br-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy | Levels (cm⁻¹) | Int. | Refs. | | |
|----------------|----------------|-------|------------|---------------|-------|--------|---|----|
| 113.205 | 4p⁵ | ²P¹/₂ | 4p⁴(³P)6d | ⁴P₃/₂ | 23274 | 906608 | 1 | 25 |
| 110.304 | | 3/2 | | 3/2 | 0 | 906608 | 1 | 25 |
| 110.189 | | 3/2 | | 5/2 | 0 | 907534 | 1 | 25 |
| 112.746 | 4p⁵ | ²P¹/₂ | 4p⁴(³P)6d | ²P₃/₂ | 23274 | 910220 | 1 | 25 |
| 109.864 | | 3/2 | | 3/2 | 0 | 910220 | 1 | 25 |
| 111.461 | 4p⁵ | ²P¹/₂ | 4p⁴(¹D)6d | ²S₁/₂ | 23274 | 920428 | 1 | 25 |
| 108.648 | | 3/2 | | 1/2 | 0 | 920428 | 1 | 25 |
| 111.383 | 4p⁵ | ²P¹/₂ | 4p⁴(¹D)6d | ²P₃/₂ | 23274 | 921068 | 3 | 25 |
| 111.012 | | 1/2 | | 1/2 | 23274 | 924105 | 1 | 25 |
| 110.573 | 4p⁵ | ²P¹/₂ | 4p⁴(¹D)6d | ²D₃/₂ | 23274 | 927660 | 1 | 25 |
| 108.255 | | 3/2 | | 5/2 | 0 | 923747 | 1 | 25 |
| 109.904 | 4p⁵ | ²P⁹/₂ | 4p⁴(³P)6d | ²F₅/₂ | 0 | 909889 | 2 | 25 |
| 109.760 | 4p⁵ | ²P¹/₂ | 4p⁴(³P₁)7s | (1,¹₂)¹/₂ | 23274 | 934364 | 3 | 25 |
| 107.203 | | 3/2 | | 3/2 | 0 | 932812 | 4 | 25 |
| 107.024 | | 3/2 | | 1/2 | 0 | 934364 | 3 | 25 |
| 109.095 | 4p⁵ | ²P⁹/₂ | 4p⁴(³P₂)7s | (2,¹₂)⁵/₂ | 0 | 916634 | 2 | 25 |
| 108.796 | | 3/2 | | 3/2 | 0 | 919154 | 4 | 25 |
| 108.571 | 4p⁵ | ²P⁹/₂ | 4p⁴(¹D)6d | ²P₃/₂ | 0 | 921068 | 1 | 25 |
| 108.210 | | 3/2 | | 1/2 | 0 | 924105 | 3 | 25 |
| 107.797 | 4p⁵ | ²P⁹/₂ | 4p⁴(¹D)6d | ²D₃/₂ | 0 | 927660 | 1 | 25 |
| 107.652 | 4p⁵ | ²P⁹/₂ | 4p⁴(³P₀)7s | (0,¹₂)¹/₂ | 0 | 928921 | 1 | 25 |
| 107.380 | 4p⁵ | ²P¹/₂ | 4p⁴(¹D₂)7s | (2,¹₂)₃/₂ | 23274 | 948153 | 3 | 25 |
| 105.423 | | 3/2 | | 5/2 | 0 | 948129 | 6 | 25 |
| 106.259 | 4p⁵ | ²P¹/₂ | 4p⁴(¹S)6d | ²D₃/₂ | 23274 | 964373 | 5 | 25 |
| 104.306 | 4p⁵ | ²P¹/₂ | 4p⁴(¹S₀)7s | (0,¹₂)¹/₂ | 23274 | 982044 | 1 | 25 |
| 101.823 | | 3/2 | | 1/2 | 0 | 982044 | 1 | 25 |

Mo IX (Se-Sequence) IP = $1323700 \pm 8000 \text{ cm}^{-1}$ (164.12 ± 1.00 eV)

| Wavelength (Å) | Classification | Energy Levels (cm ⁻¹) | | Int. | Refs. | |
|----------------|--|---|--------------------|----------------------|----------|----------|
| 577.272 | 4s ² 4p ⁴ ¹ S ₀ | 4s4p ⁵ ³ P ₁ ^o | 72884.6 | 246113.0 | 8 | 80 |
| 506.462 | 4s ² 4p ⁴ ¹ D ₂ 2 | 4s4p ⁵ ³ P ₂ ^o 1 | 35674.5 35674.5 | 233122.9 246113.0 | 30 1 | 80 80 |
| 475.197 | | | | | | |
| 470.484 | 4s ² 4p ⁴ ³ P ₁ 1 | 4s4p ⁵ ³ P ₂ ^o 1 | 20576.3 20576.3 | 233122.9 246113.0 | 40 18 | 80 80 |
| 443.388 | | | | | | |
| 435.684 | 0 | 1 | 16588.8 | 246113.0 | 20 | 80 |
| 428.959 | 2 | 2 | 0 | 233122.9 | 100 | 47,80° |
| 423.800 | 1 | 0 | 20576.3 | 256536.7 | 25 | 80 |
| 406.319 | 2 | 1 | 0 | 246113.0 | 50 | 80 |
| 448.956 | 4s ² 4p ⁴ ¹ S ₀ | 4s4p ⁵ ¹ P ₁ ^o | 72884.6 | 295624 | 3 | 80 |
| 384.691 | 4s ² 4p ⁴ ¹ D ₂ | 4s4p ⁵ ¹ P ₁ ^o | 35674.5 | 295624 | 75 | 80 |
| 338.264 | 4s ² 4p ⁴ ³ P ₂ | 4s4p ⁵ ¹ P ₁ ^o | 0 | 295624 | 15 | 80 |
| 363.764 | 4p ⁴ ¹ S ₀ | 4p ³ (² D ^o)4d ³ D ₁ ^o | 72884.6 | 347777 | 2 | 78 |
| 325.188 | 4p ⁴ ¹ S ₀ | 4p ³ (² P ^o)4d ³ D ₁ ^o | 72884.6 | 380383 | 7 | 78 |
| 320.416 | 4p ⁴ ¹ D ₂ | 4p ³ (² D ^o)4d ³ D ₁ ^o | 35674.5 | 347777 | 6 | 78 |
| 317.704 | 4p ⁴ ¹ D ₂ 2 | 4p ³ (² D ^o)4d ³ F ₂ ^o 3 | 35674.5 35674.5 | 350444 353696 | 6 2 | 78 78 |
| 314.446 | | | | | | |
| 306.182 | 4p ⁴ ¹ D ₂ | 4p ³ (² D ^o)4d ³ G ₃ ^o | 35674.5 | 362277 | 5 | 78 |
| 305.634 | 4p ⁴ ³ P ₁ 0 | 4p ³ (² D ^o)4d ³ D ₁ ^o 1 | 20576.3 16588.8 | 347777 347777 | 3 2 | 78 78 |
| 287.537 | 2 | 1 | 0 | 347777 | 9 | 78 |
| 303.148 | 4p ⁴ ³ P ₁ 2 | 4p ³ (² D ^o)4d ³ F ₂ ^o 2 | 20576.3 0 | 350444 350444 | 9 3 | 78 78 |
| 285.346 | 2 | 3 | 0 | 353696 | 8 | 78 |
| 282.728 | | | | | | |
| 290.108 | 4p ⁴ ¹ D ₂ | 4p ³ (² P ^o)4d ³ D ₁ ^o | 35674.5 | 380383 | 10 | 78 |
| 280.133 | 2 | 2 | 35674.5 | 392634 | 2 | 78 |
| 272.543 | 2 | 3 | 35674.5 | 402590 | 12 | 78 |
| 289.140 | 4p ⁴ ¹ D ₂ | 4p ³ (² P ^o)4d ¹ D ₂ ^o | 35674.5 | 381528 | 3 | 78 |
| 287.291 | 4p ⁴ ¹ S ₀ | 4p ³ (² D ^o)4d ¹ P ₁ ^o | 72884.6 | 420947 | 9 | 78 |
| 283.169 | 4p ⁴ ¹ D ₂ 2 | 4p ³ (² P ^o)4d ³ P ₁ ^o 2 | 35674.5 35674.5 | 388801 405684 | 25 3 | 78 78 |
| 270.262 | | | | | | |
| 278.019 | 4p ⁴ ¹ D ₂ 2 | 4p ³ (² P ^o)4d ³ F ₃ ^o 2 | 35674.5 35674.5 | 395360 396711 | 14 22 | 78 78 |
| 276.978 | | | | | | |
| 277.914 | 4p ⁴ ³ P ₁ 0 | 4p ³ (² P ^o)4d ³ D ₁ ^o 1 | 20576.3 16588.8 | 380383 380383 | 2 18 | 78 78 |
| 274.885 | 1 | 2 | 20576.3 | 392634 | 7 | 78 |
| 268.771 | | | | | | |
| 262.894 | 2 | 1 | 0 | 380383 | 8 | 78 |
| 254.702 | 2 | 2 | 0 | 392634 | 3 | 78 |
| 248.391 | 2 | 3 | 0 | 402590 | 24 | 78 |
| 277.347 | 4p ⁴ ¹ S ₀ | 4p ³ (² D ^o)4d ³ P ₁ ^o | 72884.6 | 433445 | 9 | 78 |

Mo IX (Se-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm⁻¹) | | Int. | Refs. |
|----------------|----------------|----------------|----------------------|--------|------|-------|
| 276.032 | 4p⁴ ³P₂ | 4p³(²D°)4d ³G₃ | 0 | 362277 | 24 | 78 |
| 271.572 | 4p⁴ ³P₁ | 4p³(²P°)4d ³P₁ | 20576.3 | 388801 | 6 | 78 |
| 259.667 | 1 | 2 | 20576.3 | 405684 | 6 | 78 |
| 257.202 | 2 | 1 | 0 | 388801 | 8 | 78 |
| 246.499 | 2 | 2 | 0 | 405684 | 12 | 78 |
| 265.860 | 4p⁴ ³P₁ | 4p³(²P°)4d ³F₂ | 20576.3 | 396711 | 24 | 78 |
| 252.936 | 2 | 3 | 0 | 395360 | 20 | 78 |
| 252.077 | 2 | 2 | 0 | 396711 | 12 | 78 |
| 262.413 | 4p⁴ ¹D₂ | 4p³(²D°)4d ³S₁ | 35674.5 | 416746 | 24 | 78 |
| 262.103 | 4p⁴ ³P₂ | 4p³(²P°)4d ¹D₂ | 0 | 381528 | 14 | 78 |
| 260.792 | 4p⁴ ¹D₂ | 4p³(²D°)4d ³P₂ | 35674.5 | 419123 | 14 | 78 |
| 251.405 | 2 | 1 | 35674.5 | 433445 | 16 | 78 |
| 259.569 | 4p⁴ ¹D₂ | 4p³(²D°)4d ¹P₁ | 35674.5 | 420947 | 25 | 78 |
| 257.503 | 4p⁴ ¹D₂ | 4p³(²P°)4d ¹F₃ | 35674.5 | 424009 | 6 | 78 |
| 252.638 | 4p⁴ ¹D₂ | 4p³(⁴S°)4d ³D₃ | 35674.5 | 431498 | 2 | 78 |
| 246.718 | 2 | 2 | 35674.5 | 441012 | 25 | 78 |
| 242.817 | 2 | 1 | 35674.5 | 447509 | 11 | 78 |
| 252.418 | 4p⁴ ³P₁ | 4p³(²D°)4d ³S₁ | 20576.3 | 416746 | 13 | 78 |
| 249.906 | 0 | 1 | 16588.8 | 416746 | 14 | 78 |
| 239.953 | 2 | 1 | 0 | 416746 | 24 | 78 |
| 250.912 | 4p⁴ ³P₁ | 4p³(²D°)4d ³P₂ | 20576.3 | 419123 | 20 | 78 |
| 242.211 | 1 | 1 | 20576.3 | 433445 | 20 | 78 |
| 239.886 | 0 | 1 | 16588.8 | 433445 | 18 | 78 |
| 238.591 | 2 | 2 | 0 | 419123 | 25 | 78 |
| 230.708 | 2 | 1 | 0 | 433445 | 12 | 78 |
| 249.769 | 4p⁴ ³P₁ | 4p³(²D°)4d ¹P₁ | 20576.3 | 420947 | 20 | 78 |
| 247.304 | 0 | 1 | 16588.8 | 420947 | 22 | 78 |
| 237.560 | 2 | 1 | 0 | 420947 | 20 | 78 |
| 240.958 | 4p⁴ ¹S₀ | 4p³(²P°)4d ¹P₁ | 72884.6 | 487905 | 25 | 78 |
| 237.843 | 4p⁴ ³P₁ | 4p³(⁴S°)4d ³D₂ | 20576.3 | 441012 | 25 | 78 |
| 234.228 | 1 | 1 | 20576.3 | 447509 | 20 | 78 |
| 232.056 | 0 | 1 | 16588.8 | 447509 | 25 | 78 |
| 231.751 | 2 | 3 | 0 | 431498 | 24 | 78 |
| 226.747 | 2 | 2 | 0 | 441012 | 25 | 78 |
| 223.458 | 2 | 1 | 0 | 447509 | 10 | 78 |
| 237.843 | 4p⁴ ¹D₂ | 4p³(²D°)4d ¹D₂ | 35674.5 | 456111 | 25 | 78 |
| 235.850 | 4p⁴ ³P₂ | 4p³(²P°)4d ¹F₃ | 0 | 424009 | 16 | 78 |
| 231.991 | 4p⁴ ¹D₂ | 4p³(²D°)4d ¹F₃ | 35674.5 | 466718 | 25 | 78 |
| 229.607 | 4p⁴ ³P₁ | 4p³(²D°)4d ¹D₂ | 20576.3 | 456111 | 14 | 78 |
| 221.127 | 4p⁴ ¹D₂ | 4p³(²P°)4d ¹P₁ | 35674.5 | 487905 | 2 | 78 |
| 214.266 | 4p⁴ ³P₂ | 4p³(²D°)4d ¹F₃ | 0 | 466718 | 10 | 78 |

Mo IX (Se-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm⁻¹) | | Int. | Refs. |
|----------------|----------------|----------------------------------|----------------------|--------|------|--------|
| 213.980 | 4p⁴ ³P₁ | 4p³(²P°)4d ¹P₁ | 20576.3 | 487905 | 9 | 78 |
| 212.168 | ₀ | ₁ | 16588.8 | 487905 | 6 | 78 |
| 178.010 | 4p⁴ ³P₁ | 4p³(⁴S _{3/2})5s (³¹₂)⁰ | 20576.3 | 582356 | 7 | 26°,78 |
| 176.750 | ₀ | ₁ | 16588.8 | 582356 | 6 | 26°,78 |
| 171.713 | ₂ | ₁ | 0 | 582356 | 12 | 26°,78 |
| 176.682 | 4p⁴ ¹D₂ | 4p³(²D _{3/2})5s (³¹₂)⁰ | 35674.5 | 601678 | 4 | 26°,78 |
| 176.432 | ₂ | ₁ | 35674.5 | 602468 | 4 | 26°,78 |
| 174.887 | 4p⁴ ³P₂ | 4p³(⁴S _{3/2})5s (³¹₂)⁰ | 0 | 571798 | 11 | 26°,78 |
| 174.346 | 4p⁴ ¹D₂ | 4p³(²D _{5/2})5s (⁵¹₂)⁰ | 35674.5 | 609234 | 6 | 26°,78 |
| 174.019 | 4p⁴ ¹S₀ | 4p³(²P _{3/2})5s (³¹₂)⁰ | 72884.6 | 647535 | 7 | 26°,78 |
| 173.091 | 4p⁴ ¹D₂ | 4p³(²D _{5/2})5s (⁵¹₂)⁰ | 35674.5 | 613394 | 15 | 26°,78 |
| 172.083 | 4p⁴ ³P₁ | 4p³(²D _{3/2})5s (³¹₂)⁰ | 20576.3 | 601678 | 6 | 26°,78 |
| 171.862 | ₁ | ₁ | 20576.3 | 602468 | 11 | 26°,78 |
| 170.674 | ₀ | ₁ | 16588.8 | 602468 | 3 | 26°,78 |
| 166.201 | ₂ | ₂ | 0 | 601678 | 12 | 26°,78 |
| 168.683 | 4p⁴ ³P₁ | 4p³(²D _{5/2})5s (⁵¹₂)⁰ | 20576.3 | 613394 | 6 | 26°,78 |
| 163.033 | ₂ | ₂ | 0 | 613394 | 5 | 26°,78 |
| 168.144 | 4p⁴ ¹D₂ | 4p³(²P _{1/2})5s (¹¹₂)⁰ | 35674.5 | 630384 | 6 | 26°,78 |
| 164.454 | 4p⁴ ³P₁ | 4p³(²P _{1/2})5s (¹¹₂)⁰ | 20576.3 | 628649 | 6 | 26°,78 |
| 163.986 | ₁ | ₁ | 20576.3 | 630384 | 4 | 26°,78 |
| 164.355 | 4p⁴ ¹D₂ | 4p³(²P _{3/2})5s (³¹₂)⁰ | 35674.5 | 644114 | 7 | 26°,78 |
| 164.144 | 4p⁴ ³P₂ | 4p³(²D _{5/2})5s (⁵¹₂)⁰ | 0 | 609234 | 20 | 26°,78 |
| 163.436 | 4p⁴ ¹D₂ | 4p³(²P _{3/2})5s (³¹₂)⁰ | 35674.5 | 647535 | 7 | 26°,78 |
| 162.918 | 4p⁴ ³P₀ | 4p³(²P _{1/2})5s (¹¹₂)⁰ | 16588.8 | 630384 | 7 | 26°,78 |
| 158.641 | ₂ | ₁ | 0 | 630384 | 3 | 26°,78 |
| 160.375 | 4p⁴ ³P₁ | 4p³(²P _{3/2})5s (³¹₂)⁰ | 20576.3 | 644114 | 9 | 26°,78 |
| 155.246 | ₂ | ₂ | 0 | 644114 | 5 | 26°,78 |
| 132.908 | 4p⁴ ¹S₀ | 4p³(²P°)5d ³D₁ | 72884.6 | 825266 | 1 | 62 |
| 132.077 | 4p⁴ ¹S₀ | 4p³(²P°)5d ³P₁ | 72884.6 | 830015 | 0 | 62 |
| 128.878 | 4p⁴ ¹S₀ | 4p³(²D°)5d ³P₁ | 72884.6 | 848809 | 0 | 62 |
| 128.740 | 4p⁴ ³P₁ | 4p³(²D°)5d ³D₁ | 20576.3 | 797355 | 1 | 62 |
| 128.076 | ₀ | ₁ | 16588.8 | 797355 | 1 | 62 |
| 128.200 | 4p⁴ ³P₁ | 4p³(²D°)5d ³F₂ | 20576.3 | 800579 | 1 | 62 |
| 124.914 | ₂ | ₂ | 0 | 800579 | 2 | 62 |
| 127.086 | 4p⁴ ¹D₂ | 4p³(²D°)5d ³G₃ | 35674.5 | 822534 | 1 | 62 |
| 126.187 | 4p⁴ ¹S₀ | 4p³(⁴S°)5d ³D₁ | 72884.6 | 865366 | 2 | 62 |
| 126.100 | 4p⁴ ¹D₂ | 4p³(²P°)5d ¹D₂ | 35674.5 | 828728 | 4 | 62 |

Mo IX (Se-Sequence) — Continued

| Wavelength (Å) | Classification | Energy Levels (cm⁻¹) | | Int. | Refs. | |
|----------------|----------------|----------------------|---------|--------|-------|----|
| 124.266 | 4p⁴ ³P₁ | 4p³(²P°)5d ³D₁ | 20576.3 | 825266 | 2 | 62 |
| 123.660 | 0 | 1 | 16588.8 | 825266 | 0 | 62 |
| 121.180 | 2 | 1 | 0 | 825266 | 1 | 62 |
| 119.114 | 2 | 3 | 0 | 839507 | 10 | 62 |
| 124.408 | 4p⁴ ¹D₂ | 4p³(²P°)5d ³D₃ | 35674.5 | 839507 | 5 | 62 |
| 124.369 | 4p⁴ ¹D₂ | 4p³(²P°)5d ³P₂ | 35674.5 | 839713 | 2 | 62 |
| 124.221 | 4p⁴ ¹D₂ | 4p³(²D°)5d ³P₂ | 35674.5 | 840654 | 0 | 62 |
| 122.984 | 2 | 1 | 35674.5 | 848809 | 1 | 62 |
| 123.778 | 4p⁴ ¹D₂ | 4p³(²D°)5d ¹P₁ | 35674.5 | 843565 | 0 | 62 |
| 123.738 | 4p⁴ ³P₁ | 4p³(²P°)5d ¹D₂ | 20576.3 | 828728 | 5 | 62 |
| 120.663 | 2 | 2 | 0 | 828728 | 0 | 62 |
| 123.545 | 4p⁴ ³P₁ | 4p³(²P°)5d ³P₁ | 20576.3 | 830015 | 8 | 62 |
| 122.084 | 1 | 2 | 20576.3 | 839713 | 3 | 62 |
| 120.478 | 2 | 1 | 0 | 830015 | 3 | 62 |
| 119.087 | 2 | 2 | 0 | 839713 | 0 | 62 |
| 123.485 | 4p⁴ ¹D₂ | 4p³(²P°)5d ¹F₃ | 35674.5 | 845474 | 4 | 62 |
| 123.178 | 4p⁴ ¹D₂ | 4p³(⁴S°)5d ³D₃ | 35674.5 | 847507 | 6 | 62 |
| 120.528 | 2 | 1 | 35674.5 | 865366 | 0 | 62 |
| 122.897 | 4p⁴ ¹S₀ | 4p³(²P°)5d ¹P₁ | 72884.6 | 886605 | 2 | 62 |
| 121.941 | 4p⁴ ³P₁ | 4p³(²D°)5d ³P₂ | 20576.3 | 840654 | 6 | 62 |
| 120.156 | 0 | 1 | 16588.8 | 848809 | 4 | 62 |
| 118.959 | 2 | 2 | 0 | 840654 | 5 | 62 |
| 117.814 | 2 | 1 | 0 | 848809 | 5 | 62 |
| 121.577 | 4p⁴ ³P₂ | 4p³(²D°)5d ³G₃ | 0 | 822534 | 6 | 62 |
| 121.517 | 4p⁴ ³P₁ | 4p³(²D°)5d ¹P₁ | 20576.3 | 843565 | 1 | 62 |
| 118.537 | 2 | 1 | 0 | 843565 | 0 | 62 |
| 119.913 | 4p⁴ ¹D₂ | 4p³(²D°)5d ¹D₂ | 35674.5 | 869633 | 1 | 62 |
| 118.373 | 4p⁴ ³P₁ | 4p³(⁴S°)5d ³D₁ | 20576.3 | 865366 | 4 | 62 |
| 117.814 | 0 | 1 | 16588.8 | 865366 | 5 | 62 |
| 118.279 | 4p⁴ ³P₂ | 4p³(²P°)5d ¹F₃ | 0 | 845474 | 4 | 62 |
| 117.775 | 4p⁴ ³P₁ | 4p³(²D°)5d ¹D₂ | 20576.3 | 869633 | 1 | 62 |
| 116.248 | 4p⁴ ³P₁ | 4p³(⁴S°)6s (³¹)₁ | 20576.3 | 880843 | 0 | 62 |
| 113.523 | 2 | 1 | 0 | 880843 | 5 | 62 |
| 115.471 | 4p⁴ ³P₁ | 4p³(²P°)5d ¹P₁ | 20576.3 | 886605 | 0 | 62 |
| 114.935 | 0 | 1 | 16588.8 | 886605 | 4 | 62 |
| 116.088 | 4p⁴ ¹S₀ | 4p³(²P°)6s (¹¹)₁ | 72884.6 | 934288 | 2 | 62 |
| 114.920 | 4p⁴ ¹D₂ | 4p³(²D°)6s (³¹)₂ | 35674.5 | 905858 | 4 | 62 |
| 114.854 | 2 | 1 | 35674.5 | 906239 | 0 | 62 |
| 114.042 | 2 | 3 | 35674.5 | 912477 | 0 | 62 |

Mo IX (Se-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm⁻¹) | | Int. | Refs. |
|----------------|----------------|--|----------------------|---------|------|-------|
| 114.212 | 4p⁴ ³P₂ | 4p³(⁴S _{3/2})6s (⁴S _{1/2}) ₂ ⁰ | 0 | 875565 | 1 | 62 |
| 113.932 | 4p⁴ ¹S₀ | 4p³(²P _{3/2})6s (⁴S _{1/2}) ₁ ⁰ | 72884.6 | 950649 | 4 | 62 |
| 113.663 | 4p⁴ ¹D₂ | 4p³(²D _{5/2})6s (⁴S _{1/2}) ₂ ⁰ | 35674.5 | 915504 | 10 | 62 |
| 112.916 | 4p⁴ ³P₁ | 4p³(²D _{3/2})6s (⁴S _{1/2}) ₁ ⁰ | 20576.3 | 906239 | 12 | 62 |
| 112.411 | 0 | 1 | 16588.8 | 906239 | 1 | 62 |
| 110.391 | 2 | 2 | 0 | 905858 | 8 | 62 |
| 109.600 | 2 | 3 | 0 | 912477 | 5 | 62 |
| 111.739 | 4p⁴ ³P₁ | 4p³(²D _{5/2})6s (⁴S _{1/2}) ₂ ⁰ | 20576.3 | 915504 | 2 | 62 |
| 109.227 | 2 | 2 | 0 | 915504 | 1 | 62 |
| 111.286 | 4p⁴ ¹D₂ | 4p³(²P _{1/2})6s (⁴S _{1/2}) ₁ ⁰ | 35674.5 | 934288 | 4 | 62 |
| 109.650 | 2 | 2 | 35674.5 | 947617 | 4 | 62 |
| 109.552 | 4p⁴ ³P₁ | 4p³(²P _{1/2})6s (⁴S _{1/2}) ₀ ⁰ | 20576.3 | 933385 | 1 | 62 |
| 109.444 | 1 | 1 | 20576.3 | 934288 | 4 | 62 |
| 108.966 | 0 | 1 | 16588.8 | 934288 | 1 | 62 |
| 107.876 | 1 | 2 | 20576.3 | 947617 | 1 | 62 |
| 109.287 | 4p⁴ ¹D₂ | 4p³(²P _{3/2})6s (⁴S _{1/2}) ₁ ⁰ | 35674.5 | 950649 | 4 | 62 |
| 106.080 | 4p⁴ ¹S₀ | 4p³(²P ^o)6d ³D ₁ ⁰ | 72884.6 | 1015585 | 5 | 62 |
| 104.752 | 4p⁴ ¹D₂ | 4p³(²D ^o)6d ³F ₂ ⁰ | 35674.5 | 990382 | 3 | 62 |
| 103.415 | 4p⁴ ³P₁ | 4p³(²D ^o)6d ³D ₁ ⁰ | 20576.3 | 987579 | 2 | 62 |
| 102.985 | 0 | 1 | 16588.8 | 987579 | 2 | 62 |
| 100.099 | 4p⁴ ³P₀ | 4p³(²P ^o)6d ³D ₁ ⁰ | 16588.8 | 1015585 | 4 | 62 |
| 98.460 | 2 | 1 | 0 | 1015585 | 4 | 62 |
| 97.635 | 2 | 3 | 0 | 1024196 | 1 | 62 |
| 103.110 | 4p⁴ ³P₁ | 4p³(²D ^o)6d ³F ₂ ⁰ | 20576.3 | 990382 | 4 | 62 |
| 100.967 | 2 | 2 | 0 | 990382 | 2 | 62 |
| 102.152 | 4p⁴ ¹D₂ | 4p³(²D ^o)6d ³G ₃ ⁰ | 35674.5 | 1014603 | 3 | 62 |
| 102.056 | 4p⁴ ¹D₂ | 4p³(²P ^o)6d ³D ₁ ⁰ | 35674.5 | 1015585 | 0 | 62 |
| 101.164 | 2 | 3 | 35674.5 | 1024196 | 5 | 62 |
| 101.744 | 4p⁴ ¹D₂ | 4p³(²P ^o)6d ³P ₁ ⁰ | 35674.5 | 1018148 | 1 | 62 |
| 101.069 | 2 | 2 | 35674.5 | 1025122 | 4 | 62 |
| 101.675 | 4p⁴ ¹S₀ | 4p³(⁴S ^o)6d ³D ₁ ⁰ | 72884.6 | 1056382 | 2 | 62 |
| 100.742 | 4p⁴ ¹S₀ | 4p³(²P ^o)6d ¹P ₁ ⁰ | 72884.6 | 1065491 | 4 | 62 |
| 100.437 | 4p⁴ ¹D₂ | 4p³(²P ^o)6d ¹F ₃ ⁰ | 35674.5 | 1031317 | 2 | 62 |
| 100.370 | 4p⁴ ³P₁ | 4p³(²P ^o)6d ¹D ₂ ⁰ | 20576.3 | 1016860 | 1 | 62 |
| 98.345 | 2 | 2 | 0 | 1016860 | 1 | 62 |
| 100.246 | 4p⁴ ¹D₂ | 4p³(²D ^o)6d ³P ₂ ⁰ | 35674.5 | 1033227 | 4 | 62 |
| 99.566 | 2 | 1 | 35674.5 | 1040059 | 1 | 62 |

Mo IX (Se-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm⁻¹) | Int. | Refs. | |
|----------------|----------------|-------------------|----------------------|---------|-------|----|
| 100.246 | 4p⁴ ³P₁ | 4p³(²Pº)6d ³P₁º | 20576.3 | 1018148 | 4 | 62 |
| 99.852 | 0 | 1 | 16588.8 | 1018148 | 0 | 62 |
| 99.545 | 1 | 2 | 20576.3 | 1025122 | 0 | 62 |
| 98.217 | 2 | 1 | 0 | 1018148 | 0 | 62 |
| 99.194 | 4p⁴ ³P₁ | 4p³(⁴Sº)7s (³¹)₁º | 20576.3 | 1028743 | 4 | 62 |
| 98.795 | 0 | 1 | 16588.8 | 1028743 | 0 | 62 |
| 97.206 | 2 | 1 | 0 | 1028743 | 1 | 62 |
| 98.977 | 4p⁴ ¹S₀ | 4p³(²Pº)7s (³¹)₁º | 72884.6 | 1083142 | 1 | 62 |
| 98.750 | 4p⁴ ³P₁ | 4p³(²Dº)6d ³P₂º | 20576.3 | 1033227 | 2 | 62 |
| 98.087 | 1 | 1 | 20576.3 | 1040059 | 1 | 62 |
| 97.710 | 0 | 1 | 16588.8 | 1040059 | 4 | 62 |
| 96.145 | 2 | 1 | 0 | 1040059 | 4 | 62 |
| 98.561 | 4p⁴ ³P₂ | 4p³(²Dº)6d ³G₃º | 0 | 1014603 | 5 | 62 |
| 98.097 | 4p⁴ ¹D₂ | 4p³(²Dº)₇s (³¹)₁º | 35674.5 | 1055089 | 1 | 62 |
| 98.077 | 2 | 2 | 35674.5 | 1055312 | 1 | 62 |
| 97.416 | 2 | 3 | 35674.5 | 1062162 | 1 | 62 |
| 97.885 | 4p⁴ ¹D₂ | 4p³(²Dº)6d ¹D₂º | 35674.5 | 1057289 | 4 | 62 |
| 97.494 | 4p⁴ ³P₂ | 4p³(⁴Sº)7s (³¹)₂º | 0 | 1025704 | 1 | 62 |
| 97.416 | 4p⁴ ¹S₀ | 4p³(²Pº)₇s (³¹)₁º | 72884.6 | 1099412 | 4 | 62 |
| 97.206 | 4p⁴ ¹D₂ | 4p³(²Dº)₇s (³¹)₂º | 35674.5 | 1064357 | 1 | 62 |
| 96.964 | 4p⁴ ³P₂ | 4p³(²Pº)6d ¹F₃º | 0 | 1031317 | 0 | 62 |
| 96.660 | 4p⁴ ³P₁ | 4p³(²Dº)₇s (³¹)₁º | 20576.3 | 1055089 | 4 | 62 |
| 96.295 | 0 | 1 | 16588.8 | 1055089 | 0 | 62 |
| 94.756 | 2 | 2 | 0 | 1055312 | 5 | 62 |
| 94.151 | 2 | 3 | 0 | 1062162 | 4 | 62 |
| 96.546 | 4p⁴ ³P₁ | 4p³(⁴Sº)6d ³D₁º | 20576.3 | 1056382 | 2 | 62 |
| 96.458 | 4p⁴ ³P₁ | 4p³(²Dº)6d ¹D₂º | 20576.3 | 1057289 | 1 | 62 |
| 95.811 | 4p⁴ ³P₁ | 4p³(²Dº)₇s (³¹)₂º | 20576.3 | 1064357 | 5 | 62 |
| 95.703 | 4p⁴ ³P₁ | 4p³(²Pº)6d ¹P₁º | 20576.3 | 1065491 | 4 | 62 |
| 95.339 | 0 | 1 | 16588.8 | 1065491 | 5 | 62 |
| 95.464 | 4p⁴ ¹D₂ | 4p³(²Pº)₇s (³¹)₁º | 35674.5 | 1083142 | 1 | 62 |
| 94.216 | 2 | 2 | 35674.5 | 1097040 | 3 | 62 |
| 94.172 | 4p⁴ ³P₁ | 4p³(²Pº)₇s (³¹)₀º | 20576.3 | 1082463 | 1 | 62 |
| 94.120 | 1 | 1 | 20576.3 | 1083142 | 5 | 62 |
| 93.763 | 0 | 1 | 16588.8 | 1083142 | 2 | 62 |
| 92.899 | 1 | 2 | 20576.3 | 1097040 | 1 | 62 |
| 94.008 | 4p⁴ ¹D₂ | 4p³(²Pº)₇s (³¹)₁º | 35674.5 | 1099412 | 6 | 62 |

Mo x (As-Sequence) IP = 1503000 ± 10000 cm⁻¹ (186.3 ± 1.2 eV)

| Wavelength (Å) | Classification | | Energy | Levels (cm ⁻¹) | Int. | Refs. |
|----------------|--|--|--------|----------------------------|--------|-------|
| 473.955 | 4s ² 4p ³ 2P _{3/2} ^o | 4s4p ⁴ 2D _{5/2} | 70544 | 281535 | 7000 | 85 |
| 444.565 | 4s ² 4p ³ 4S _{3/2} ^o | 4s4p ⁴ 3P _{5/2} | 0 | 224939 | 100000 | 85 |
| 416.856 | 3/2 | 3/2 | 0 | 239891 | 70000 | 85 |
| 409.070 | 3/2 | 1/2 | 0 | 244457 | 40000 | 85 |
| 406.480 | 4s ² 4p ³ 2D _{5/2} ^o | 4s4p ⁴ 2D _{5/2} | 35522 | 281535 | 300000 | 85 |
| 400.502 | 3/2 | 3/2 | 26886 | 276573 | 250000 | 85 |
| 403.419 | 4s ² 4p ³ 2P _{3/2} ^o | 4s4p ⁴ 2P _{3/2} | 70544 | 318423 | 5000 | 85 |
| 380.070 | 1/2 | 3/2 | 55313 | 318423 | 2000 | 85 |
| 368.869 | 3/2 | 1/2 | 70544 | 341642 | 70000 | 85 |
| 385.816 | 4s ² 4p ³ 2P _{1/2} ^o | 4s4p ⁴ 2S _{1/2} | 55313 | 314504 | 50000 | 85 |
| 353.483 | 4s ² 4p ³ 2D _{5/2} ^o | 4s4p ⁴ 2P _{3/2} | 35522 | 318423 | 600000 | 85 |
| 343.007 | 3/2 | 3/2 | 26886 | 318423 | 5000 | 85 |
| 317.709 | 3/2 | 1/2 | 26886 | 341642 | 10000 | 85 |
| 347.683 | 4s ² 4p ³ 2D _{3/2} ^o | 4s4p ⁴ 2S _{1/2} | 26886 | 314504 | 100000 | 85 |
| 349.426 | 4s ² 4p ³ 2P _{3/2} ^o | 4s ² 4p ² (³ P) 4d 4F _{3/2} | 70544 | 356732 | 7 | 8 |
| 344.569 | 3/2 | 5/2 | 70544 | 360764 | 5 | 8 |
| 331.683 | 1/2 | 3/2 | 55313 | 356732 | 1 | 8 |
| 331.072 | 4s ² 4p ³ 2P _{3/2} ^o | 4s ² 4p ² (³ P) 4d 4D _{1/2} | 70544 | 372595 | 6 | 8 |
| 326.255 | 3/2 | 3/2 | 70544 | 377099 | 2 | 78 |
| 319.630 | 3/2 | 5/2 | 70544 | 383440 | 3 | 78 |
| 315.162 | 1/2 | 1/2 | 55313 | 372595 | 2 | 8 |
| 310.774 | 1/2 | 3/2 | 55313 | 377099 | 2 | 78 |
| 314.049 | 4s ² 4p ³ 4S _{3/2} ^o | 4s4p ⁴ 2P _{3/2} | 0 | 318423 | 1000 | 85 |
| 311.209 | 4s ² 4p ³ 2D _{5/2} ^o | 4s ² 4p ² (³ P) 4d 4F _{3/2} | 35522 | 356732 | 5 | 8 |
| 307.467 | 5/2 | 5/2 | 35522 | 360764 | 6 | 8 |
| 303.066 | 3/2 | 3/2 | 26886 | 356732 | 16 | 8 |
| 300.746 | 5/2 | 7/2 | 35522 | 368028 | 9 | 8 |
| 299.505 | 3/2 | 5/2 | 26886 | 360764 | 10 | 8 |
| 299.122 | 4s ² 4p ³ 2D _{5/2} ^o | 4s ² 4p ² (³ P) 4d 2F _{5/2} | 35522 | 369830 | 8 | 8 |
| 294.271 | 5/2 | 7/2 | 35522 | 375345 | 3 | 8 |
| 291.576 | 3/2 | 5/2 | 26886 | 369830 | 5 | 8 |
| 299.081 | 4s ² 4p ³ 2P _{3/2} ^o | 4s ² 4p ² (³ P) 4d 2P _{3/2} | 70544 | 404950 | 2 | 78 |
| 286.748 | 3/2 | 1/2 | 70544 | 419322 | 4 | 8 |
| 274.743 | 1/2 | 1/2 | 55313 | 419322 | 1 | 78 |
| 292.748 | 4s ² 4p ³ 2D _{5/2} ^o | 4s ² 4p ² (³ P) 4d 4D _{3/2} | 35522 | 377099 | 4 | 78 |
| 289.255 | 3/2 | 1/2 | 26886 | 372595 | 12 | 8 |
| 287.417 | 5/2 | 5/2 | 35522 | 383440 | 2 | 78 |
| 285.534 | 3/2 | 3/2 | 26886 | 377099 | 4 | 78 |
| 280.466 | 3/2 | 5/2 | 26886 | 383440 | 1 | 78 |
| 277.593 | 5/2 | 7/2 | 35522 | 395762 | 5 | 8 |
| 289.495 | 4s ² 4p ³ 2P _{3/2} ^o | 4s ² 4p ² (³ P) 4d 4P _{5/2} | 70544 | 416017 | 15 | 8 |
| 285.933 | 3/2 | 3/2 | 70544 | 420260 | 2 | 78 |
| 280.253 | 3/2 | 1/2 | 70544 | 427397 | 6 | 78 |
| 268.771 | 1/2 | 1/2 | 55313 | 427397 | 7 | 78 |

Mo x (As-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy | Levels (cm⁻¹) | Int. | Refs. | | |
|----------------|---------------------------------|-------------------|---|----------------------|-------|--------|----|----|
| 280.269 | 4s ² 4p ³ | 4S _{3/2} | 4s ² 4p ² (³ P) | 4d 4F _{3/2} | 0 | 356732 | 13 | 8 |
| 277.168 | | 3/2 | | 5/2 | 0 | 360764 | 10 | 8 |
| 278.485 | 4s ² 4p ³ | 2P _{3/2} | 4s ² 4p ² (³ P) | 4d 2D _{3/2} | 70544 | 429661 | 7 | 8 |
| 270.954 | | 3/2 | | 5/2 | 70544 | 439671 | 10 | 78 |
| 267.085 | | 1/2 | | 3/2 | 55313 | 429661 | 5 | 8 |
| 270.413 | 4s ² 4p ³ | 4S _{3/2} | 4s ² 4p ² (³ P) | 4d 2F _{5/2} | 0 | 369830 | 6 | 8 |
| 270.707 | 4s ² 4p ³ | 2D _{5/2} | 4s ² 4p ² (³ P) | 4d 2P _{3/2} | 35522 | 404950 | 8 | 78 |
| 264.512 | | 3/2 | | 3/2 | 26886 | 404950 | 8 | 78 |
| 254.821 | | 3/2 | | 1/2 | 26886 | 419322 | 4 | 78 |
| 267.896 | 4s ² 4p ³ | 2D _{5/2} | 4s ² 4p ² (¹ D) | 4d 2G _{7/2} | 35522 | 408801 | 8 | 78 |
| 268.402 | 4s ² 4p ³ | 4S _{3/2} | 4s ² 4p ² (³ P) | 4d 4D _{1/2} | 0 | 372595 | 5 | 8 |
| 265.157 | | 3/2 | | 3/2 | 0 | 377099 | 3 | 78 |
| 260.777 | | 3/2 | | 5/2 | 0 | 383440 | 12 | 78 |
| 265.597 | 4s ² 4p ³ | 2P _{3/2} | 4s ² 4p ² (¹ D) | 4d 2D _{3/2} | 70544 | 446930 | 9 | 8 |
| 264.403 | | 3/2 | | 5/2 | 70544 | 448779 | 8 | 78 |
| 255.355 | | 1/2 | | 3/2 | 55313 | 446930 | 10 | 78 |
| 261.557 | 4s ² 4p ³ | 2P _{3/2} | 4s ² 4p ² (¹ D) | 4d 2P _{1/2} | 70544 | 452877 | 8 | 78 |
| 255.156 | | 3/2 | | 3/2 | 70544 | 462467 | 24 | 78 |
| 251.530 | | 1/2 | | 1/2 | 55313 | 452877 | 14 | 78 |
| 245.602 | | 1/2 | | 3/2 | 55313 | 462467 | 16 | 78 |
| 259.898 | 4s ² 4p ³ | 2D _{5/2} | 4s ² 4p ² (³ P) | 4d 4P _{3/2} | 35522 | 420260 | 2 | 78 |
| 256.989 | | 3/2 | | 5/2 | 26886 | 416017 | 5 | 78 |
| 254.201 | | 3/2 | | 3/2 | 26886 | 420260 | 4 | 78 |
| 249.668 | | 3/2 | | 1/2 | 26886 | 427397 | 20 | 78 |
| 257.854 | 4s ² 4p ³ | 2P _{3/2} | 4s ² 4p ² (¹ D) | 4d 2F _{5/2} | 70544 | 458371 | 11 | 78 |
| 254.474 | 4s ² 4p ³ | 2P _{3/2} | 4s ² 4p ² (¹ D) | 4d 2S _{1/2} | 70544 | 463532 | 20 | 78 |
| 244.959 | | 1/2 | | 1/2 | 55313 | 463532 | 9 | 78 |
| 253.731 | 4s ² 4p ³ | 2D _{5/2} | 4s ² 4p ² (³ P) | 4d 2D _{3/2} | 35522 | 429661 | 8 | 78 |
| 248.282 | | 3/2 | | 3/2 | 26886 | 429661 | 2 | 78 |
| 247.441 | | 5/2 | | 5/2 | 35522 | 439671 | 12 | 78 |
| 242.258 | | 3/2 | | 5/2 | 26886 | 439671 | 16 | 78 |
| 246.924 | 4s ² 4p ³ | 4S _{3/2} | 4s ² 4p ² (³ P) | 4d 2P _{3/2} | 0 | 404950 | 2 | 78 |
| 238.459 | | 3/2 | | 1/2 | 0 | 419322 | 5 | 78 |
| 243.071 | 4s ² 4p ³ | 2D _{5/2} | 4s ² 4p ² (¹ D) | 4d 2D _{3/2} | 35522 | 446930 | 6 | 78 |
| 241.969 | | 5/2 | | 5/2 | 35522 | 448779 | 22 | 78 |
| 238.064 | | 3/2 | | 3/2 | 26886 | 446930 | 25 | 78 |
| 237.023 | | 3/2 | | 5/2 | 26886 | 448779 | 2 | 78 |
| 240.370 | 4s ² 4p ³ | 4S _{3/2} | 4s ² 4p ² (³ P) | 4d 4P _{5/2} | 0 | 416017 | 25 | 78 |
| 237.909 | | 3/2 | | 3/2 | 0 | 420260 | 25 | 78 |
| 233.957 | | 3/2 | | 1/2 | 0 | 427397 | 21 | 78 |
| 239.998 | 4s ² 4p ³ | 2P _{3/2} | 4s ² 4p ² (¹ S) | 4d 2D _{3/2} | 70544 | 487241 | 12 | 78 |
| 239.017 | | 3/2 | | 5/2 | 70544 | 488950 | 24 | 78 |
| 231.522 | | 1/2 | | 3/2 | 55313 | 487241 | 24 | 78 |

Mo x (As-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm⁻¹) | | Int. | Refs. | | |
|----------------|---------------------------------|-------------------------------|---|-------------------------------|-------|--------|--------|--------|
| 236.492 | 4s ² 4p ³ | ² D _{5/2} | 4s ² 4p ² (¹ D)4d | ² F _{5/2} | 35522 | 458371 | 14 | 78 |
| 231.751 | | _{3/2} | | _{5/2} | 26886 | 458371 | 24 | 78 |
| 231.110 | | _{5/2} | | _{7/2} | 35522 | 468216 | 25 | 78 |
| 234.744 | 4s ² 4p ³ | ² D _{3/2} | 4s ² 4p ² (¹ D)4d | ² P _{1/2} | 26886 | 452877 | 6 | 78 |
| 232.726 | 4s ² 4p ³ | ⁴ S _{3/2} | 4s ² 4p ² (³ P)4d | ² D _{3/2} | 0 | 429661 | 16 | 78 |
| 227.436 | | _{3/2} | | _{5/2} | 0 | 439671 | 4 | 78 |
| 229.014 | 4s ² 4p ³ | ² D _{3/2} | 4s ² 4p ² (¹ D)4d | ² S _{1/2} | 26886 | 463532 | 8 | 78 |
| 221.361 | 4s ² 4p ³ | ² D _{5/2} | 4s ² 4p ² (¹ S)4d | ² D _{3/2} | 35522 | 487241 | 2 | 78 |
| 220.530 | | _{5/2} | | _{5/2} | 35522 | 488950 | 4 | 78 |
| 166.831 | 4s ² 4p ³ | ² P _{3/2} | 4s ² 4p ² 5s | ² P _{3/2} | 70544 | 669948 | 6000 | 85° |
| 165.106 | | _{1/2} | | _{1/2} | 55313 | 660981 | 15000 | 77,85° |
| 162.698 | | _{1/2} | | _{3/2} | 55313 | 669948 | 40000 | 77,85° |
| 163.369 | 4s ² 4p ³ | ² D _{3/2} | 4s ² 4p ² 5s | ⁴ P _{1/2} | 26886 | 638999 | 6000 | 77,85° |
| 161.442 | | _{5/2} | | _{3/2} | 35522 | 654947 | 6000 | 77,85° |
| 159.219 | | _{3/2} | | _{3/2} | 26886 | 654947 | 8000 | 77,85° |
| 159.049 | | _{5/2} | | _{5/2} | 35522 | 664258 | 50000 | 77,85° |
| 160.745 | 4s ² 4p ³ | ² P _{3/2} | 4s ² 4p ² 5s | ² D _{5/2} | 70544 | 692660 | 30000 | 77,85° |
| 160.075 | | _{3/2} | | _{3/2} | 70544 | 695263 | 100000 | 77,85° |
| 156.257 | | _{1/2} | | _{3/2} | 55313 | 695263 | 1500 | 85 |
| 157.706 | 4s ² 4p ³ | ² D _{3/2} | 4s ² 4p ² 5s | ² P _{1/2} | 26886 | 660981 | 100000 | 77,85° |
| 157.624 | | _{5/2} | | _{3/2} | 35522 | 669948 | 120000 | 77,85° |
| 155.506 | | _{3/2} | | _{3/2} | 26886 | 669948 | 20000 | 85 |
| 156.494 | 4s ² 4p ³ | ⁴ S _{3/2} | 4s ² 4p ² 5s | ⁴ P _{1/2} | 0 | 638999 | 100000 | 77,85° |
| 152.683 | | _{3/2} | | _{3/2} | 0 | 654947 | 100000 | 77,85° |
| 150.544 | | _{3/2} | | _{5/2} | 0 | 664258 | 100000 | 77,85° |
| 153.242 | 4s ² 4p ³ | ² P _{3/2} | 4s ² 4p ² 5s | ² S _{1/2} | 70544 | 723115 | 20000 | 77,85° |
| 149.743 | | _{1/2} | | _{1/2} | 55313 | 723115 | 10000 | 77,85° |
| 152.175 | 4s ² 4p ³ | ² D _{5/2} | 4s ² 4p ² 5s | ² D _{5/2} | 35522 | 692660 | 100000 | 85 |
| 151.575 | | _{5/2} | | _{3/2} | 35522 | 695263 | 8000 | 85 |
| 150.201 | | _{3/2} | | _{5/2} | 26886 | 692660 | 30000 | 85 |
| 149.618 | | _{3/2} | | _{3/2} | 26886 | 695263 | 10000 | 85 |
| 144.370 | 4s ² 4p ³ | ⁴ S _{3/2} | 4s ² 4p ² 5s | ² D _{5/2} | 0 | 692660 | 2000 | 85 |
| 143.631 | 4s ² 4p ³ | ² D _{3/2} | 4s ² 4p ² 5s | ² S _{1/2} | 26886 | 723115 | 200 | 85 |

Mo XI (Ge-Sequence) IP = $1688000 \pm 10000 \text{ cm}^{-1}$ ($209.3 \pm 1.2 \text{ eV}$)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. | |
|----------------|---|---|-----------------------------------|--------|-------|--------|
| 360.518 | 4s ² 4p ² 1S ₀ | 4s4p ³ 1P ₁ ^o | 84808 | 362196 | 3 | 78 |
| 325.231 | 4s ² 4p ² 1D ₂ | 4s4p ³ 1P ₁ ^o | 54719 | 362196 | 16 | 78 |
| 324.642 | 4s ² 4p ² 3P ₂ | 4s4p ³ 3S ₁ ^o | 27136 | 335178 | 18 | 78 |
| 314.868 | 1 | 1 | 17590 | 335178 | 9 | 78 |
| 298.345 | 0 | 1 | 0 | 335178 | 5 | 78 |
| 306.637 | 4s ² 4p ² 1D ₂ | 4s ² 4p4d 3F ₂ ^o | 54719 | 380832 | 2 | 78 |
| 298.242 | 2 | 3 | 54719 | 390018 | 2 | 78 |
| 290.177 | 4s ² 4p ² 3P ₁ | 4s4p ³ 1P ₁ ^o | 17590 | 362196 | 9 | 78 |
| 282.728 | 4s ² 4p ² 3P ₂ | 4s ² 4p4d 3F ₂ ^o | 27136 | 380832 | 8 | 78 |
| 275.572 | 2 | 3 | 27136 | 390018 | 6 | 78 |
| 275.305 | 1 | 2 | 17590 | 380832 | 3 | 78 |
| 277.103 | 4s ² 4p ² 1D ₂ | 4s ² 4p4d 1D ₂ ^o | 54719 | 415602 | 5 | 78 |
| 270.497 | 4s ² 4p ² 1D ₂ | 4s ² 4p4d 3P ₁ ^o | 54719 | 424400 | 7 | 78 |
| 266.365 | 2 | 2 | 54719 | 430145 | 12 | 78 |
| 258.410 | 4s ² 4p ² 1D ₂ | 4s ² 4p4d 3D ₁ ^o | 54719 | 441686 | 4 | 78 |
| 256.749 | 2 | 3 | 54719 | 444196 | 6 | 78 |
| 256.015 | 2 | 2 | 54719 | 445333 | 18 | 78 |
| 257.418 | 4s ² 4p ² 3P ₂ | 4s ² 4p4d 1D ₂ ^o | 27136 | 415602 | 23 | 78 |
| 251.250 | 1 | 2 | 17590 | 415602 | 24 | 78 |
| 251.725 | 4s ² 4p ² 3P ₂ | 4s ² 4p4d 3P ₁ ^o | 27136 | 424400 | 8 | 78 |
| 248.134 | 2 | 2 | 27136 | 430145 | 8 | 78 |
| 245.817 | 1 | 1 | 17590 | 424400 | 8 | 78 |
| 242.390 | 1 | 2 | 17590 | 430145 | 16 | 78 |
| 239.253 | 1 | 0 | 17590 | 435558 | 8 | 78 |
| 235.629 | 0 | 1 | 0 | 424400 | 12 | 78 |
| 251.351 | 4s ² 4p ² 1S ₀ | 4s ² 4p4d 1P ₁ ^o | 84808 | 482661 | 14 | 78 |
| 241.228 | 4s ² 4p ² 3P ₂ | 4s ² 4p4d 3D ₁ ^o | 27136 | 441686 | 8 | 78 |
| 239.778 | 2 | 3 | 27136 | 444196 | 25 | 78 |
| 239.121 | 2 | 2 | 27136 | 445333 | 22 | 78 |
| 235.802 | 1 | 1 | 17590 | 441686 | 12 | 78 |
| 233.780 | 1 | 2 | 17590 | 445333 | 16 | 78 |
| 226.406 | 0 | 1 | 0 | 441686 | 2 | 78 |
| 237.765 | 4s ² 4p ² 1D ₂ | 4s ² 4p4d 1F ₃ ^o | 54719 | 475300 | 24 | 78 |
| 233.684 | 4s ² 4p ² 1D ₂ | 4s ² 4p4d 1P ₁ ^o | 54719 | 482661 | 3 | 78 |
| 223.134 | 4s ² 4p ² 3P ₂ | 4s ² 4p4d 1F ₃ ^o | 27136 | 475300 | 8 | 78 |
| 219.526 | 4s ² 4p ² 3P ₂ | 4s ² 4p4d 1P ₁ ^o | 27136 | 482661 | 3 | 78 |
| 207.179 | 0 | 1 | 0 | 482661 | 8 | 78 |
| 160.188 | 4s ² 4p ² 1S ₀ | 4s ² 4p5s 3P ₁ ^o | 84808 | 709077 | 2 | 77°,78 |
| 152.818 | 4s ² 4p ² 1D ₂ | 4s ² 4p5s 3P ₁ ^o | 54719 | 709077 | 3 | 77°,78 |
| 146.955 | 2 | 2 | 54719 | 735196 | 15 | 77°,78 |
| 152.723 | 4s ² 4p ² 1S ₀ | 4s ² 4p5s 1P ₁ ^o | 84808 | 739589 | 10 | 77°,78 |

Mo XI (Ge-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. | |
|----------------|---|---|-----------------------------------|--------|-------|--------|
| 146.016 | 4s ² 4p ² ¹ D ₂ | 4s ² 4p5s ¹ P ₁ ^o | 54719 | 739589 | 22 | 77°,78 |
| 146.641 | 4s ² 4p ² ³ P ₂ | 4s ² 4p5s ³ P ₁ ^o | 27136 | 709077 | 18 | 77°,78 |
| 145.009 | 1 | 0 | 17590 | 707202 | 12 | 77°,78 |
| 144.616 | 1 | 1 | 17590 | 709077 | 10 | 77°,78 |
| 141.030 | 0 | 1 | 0 | 709077 | 15 | 77°,78 |
| 141.231 | 2 | 2 | 27136 | 735196 | 20 | 77°,78 |
| 139.353 | 1 | 2 | 17590 | 735196 | 18 | 77°,78 |
| 140.357 | 4s ² 4p ² ³ P ₂ | 4s ² 4p5s ¹ P ₁ ^o | 27136 | 739589 | 5 | 77°,78 |

Mo XII (Ga-Sequence)

IP = 1857300 ± 15000 cm⁻¹ (230.28 ± 2.0 eV)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. |
|----------------|---|--|-----------------------------------|--------|-------|
| 336.639 | 4s ² 4p ² P _{3/2} ^o | 4s4p ² ² P _{1/2} | 28465 | 325520 | 47 |
| 329.414 | 3/2 | 3/2 | 28465 | 332037 | 47 |
| 307.202 | 1/2 | 1/2 | 0 | 325520 | 116 |
| 301.170 | 1/2 | 3/2 | 0 | 332037 | 116 |
| 136.499 | 4s ² 4p ² P _{3/2} ^o | 4s ² 5s ² S _{1/2} | 28465 | 761072 | 116 |
| 131.394 | 1/2 | 1/2 | 0 | 761072 | 116 |

Mo XIII (Zn-Sequence)

IP = 2240000 ± 22000 cm⁻¹ (277.7 ± 3 eV)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. |
|----------------|--|---|-----------------------------------|---------|---------|
| 518.904 | 4s4p ¹ P ₁ ^o | 4p ² ¹ D ₂ | 293333 | 486056 | 72 |
| 480.820 | 4s ² ¹ S ₀ | 4s4p ³ P ₁ ^o | 0 | 207980 | 47,72° |
| 453.099 | 4s4p ¹ P ₁ ^o | 4p ² ³ P ₂ | 293333 | 514035 | 72 |
| 395.399 | 4s4p ³ P ₂ ^o | 4p ² ³ P ₁ | 230664 | 483571 | 72 |
| 389.926 | 1 | 0 | 207980 | 464441 | 247,72° |
| 362.865 | 1 | 1 | 207980 | 483571 | 47,72° |
| 352.904 | 2 | 2 | 230664 | 514035 | 47,72° |
| 352.001 | 0 | 1 | 199480 | 483571 | 72 |
| 326.736 | 1 | 2 | 207980 | 514035 | 72 |
| 391.546 | 4s4p ³ P ₂ ^o | 4p ² ¹ D ₂ | 230664 | 486056 | 72 |
| 359.631 | 1 | 2 | 207980 | 486056 | 72 |
| 340.909 | 4s ² ¹ S ₀ | 4s4p ¹ P ₁ ^o | 0 | 293333 | 100 |
| 88.770 | 4s ² ¹ S ₀ | 4s5p ³ P ₂ ^o | 0 | 1126500 | 1 |
| 87.788 | 4s ² ¹ S ₀ | 4s5p ¹ P ₁ ^o | 0 | 1139100 | 2 |
| 54.101 | 3d ¹⁰ 4s ² ¹ S ₀ | 3d ⁹ 4s ² 4p ¹ P ₁ ^o | 0 | 1848400 | 20 |
| 53.551 | 3d ¹⁰ 4s ² ¹ S ₀ | 3d ⁹ 4s ² 4p ³ D ₁ ^o | 0 | 1867400 | 10 |

Mo xiv (Cu-Sequence) IP = $2440600 \pm 3000 \text{ cm}^{-1}$ ($302.60 \pm 0.4 \text{ eV}$)

| Wavelength (Å) | Classification | Energy Levels (cm ⁻¹) | | | Int. | Refs. |
|----------------|----------------------------------|---|--------------------|--------------------|---------------|------------------------------|
| 423.576 | 4s ² S _{1/2} | 4p ² P _{1/2} 3/2 | 0 0 | 236085 267632 | 2000 10000 | 47,54,81°,82 47,54,81°,82 |
| 373.647 | 1/2 | | | | | |
| 295.366 | 4f ² F _{5/2} | 5d ² D _{3/2} 5/2 | 1033850 1033968 | 1372413 1374830 | 10 15 | 82 82 |
| 293.374 | 7/2 | | | | | |
| 264.126 | 4d ² D _{5/2} | 4f ² F _{5/2} 7/2 | 655242 655242 | 1033850 1033968 | 40 400 | 82 82 |
| 264.043 | 5/2 | | | | | |
| 260.501 | 3/2 | 5/2 | 649976 | 1033850 | 300 | 82 |
| 261.544 | 4p ² P _{3/2} | 4d ² D _{3/2} | 267632 | 649976 | 200 | 82 |
| 257.993 | 3/2 | 5p ² P _{1/2} 3/2 | 267632 655242 | 649976 | 800 | 82 |
| 241.609 | 1/2 | 3/2 | 236085 | 1033968 | 800 | 82 |
| 184.481 | 4d ² D _{3/2} | 5p ² P _{1/2} 3/2 | 649976 655242 | 1192036 1205254 | 300 | 31,82° |
| 181.817 | 5/2 | 3/2 | | | 600 | 31,82° |
| 180.087 | 3/2 | 3/2 | 649976 | 1205254 | 85 | 31,82° |
| 183.949 | 4f ² F _{7/2} | 5g ² G _{7/2} | 1033968 | 1577546 | 1200 | 31,82° |
| 183.949 | 7/2 | 9/2 | 1033968 | 1577546 | 1200 | 31,82° |
| 123.902 | 4f ² F _{7/2} | 6g ² G _{7/2} | 1033968 | 1841006 | 150 | 31,82° |
| 123.902 | 7/2 | 9/2 | 1033968 | 1841006 | 150 | 31,82° |
| 123.902 | 5/2 | 7/2 | 1033850 | 1841006 | 150 | 31,82° |
| 121.647 | 4p ² P _{3/2} | 5s ² S _{1/2} 1/2 | 267632 236085 | 1089691 1089691 | 1500 1000 | 4,81,82° 4,81,82° |
| 117.149 | 1/2 | | | | | |
| 112.973 | 4d ² D _{5/2} | 5f ² F _{5/2} | 655242 | 1540440 | 30 | 82 |
| 112.952 | 5/2 | 7/2 | 655242 | 1540574 | 300 | 4,82° |
| 112.300 | 3/2 | 5/2 | 649976 | 1540440 | 150 | 4,82° |
| 103.500 | 4f ² F _{7/2} | 7g ² G _{7/2} | 1033968 | 2000101 | 40 | 82 |
| 103.500 | 7/2 | 9/2 | 1033968 | 2000101 | 40 | 82 |
| 103.500 | 5/2 | 7/2 | 1033850 | 2000101 | 40 | 82 |
| 101.699 | 4d ² D _{3/2} | 6p ² P _{1/2} | 649976 | 1633270 | 15 | 82,83° |
| 101.543 | 5/2 | 3/2 | 655242 | 1640046 | 70 | 82 |
| 101.004 | 3/2 | 3/2 | 649976 | 1640046 | 5 | 82 |
| 90.519 | 4p ² P _{3/2} | 5d ² D _{3/2} | 267632 | 1372413 | 70 | 82 |
| 90.319 | 3/2 | 5/2 | 267632 | 1374830 | 400 | 4,82° |
| 88.000 | 1/2 | 3/2 | 236085 | 1372413 | 150 | 4,82° |
| 85.979 | 4d ² D _{5/2} | 6f ² F _{5/2} 7/2 | 655242 649976 | 1818317 1818244 | 100 70 | 82 82 |
| 85.597 | 3/2 | | | | | |
| 83.890 | 4s ² S _{1/2} | 5p ² P _{1/2} 3/2 | 0 0 | 1192036 1205254 | 400 600 | 4,82° 4,82° |
| 82.971 | 1/2 | | | | | |
| 76.216 | 4p ² P _{3/2} | 6s ² S _{1/2} 1/2 | 267632 236085 | 1579705 1579705 | 50 20 | 31,82° 31,82° |
| 74.425 | 1/2 | | | | | |
| 63.45 | 4p ² P _{3/2} | 7s ² S _{1/2} 1/2 | 267632 236085 | 1843580 1843580 | | 31 31 |
| 62.21 | 1/2 | | | | | |
| 61.229 | 4s ² S _{1/2} | 6p ² P _{1/2} 3/2 | 0 0 | 1633270 1640046 | 40 60 | 4,83° 4,82,83° |
| 60.975 | 1/2 | | | | | |

Mo xiv (Cu-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | | Int. | Refs. | | | |
|----------------|---------------------|-------------|--|-------------|-------------|---------|---------|----------------|----------------|
| 57.65 | 4p | $^2P_{3/2}$ | 8s | $^2S_{1/2}$ | 267632 | 2002340 | 31 | | |
| 56.61 | | $_{1/2}$ | | $_{1/2}$ | 236085 | 2002340 | 31 | | |
| 53.729 | 3d ¹⁰ 4s | $^2S_{1/2}$ | 3d ⁹ (² D)4s4p(³ P) | $^4P_{3/2}$ | 0 | 1861190 | 5 | 19,107,111° | |
| 53.100 | | $_{1/2}$ | | $_{1/2}$ | 0 | 1883240 | 3 | 19,107,111° | |
| 53.341 | 4s | $^2S_{1/2}$ | | 7p | $^2P_{1/2}$ | 0 | 1874730 | 3 | 31,107,111° |
| 53.228 | | $_{1/2}$ | | | $_{3/2}$ | 0 | 1878710 | | 31,107,111° |
| 53.341 | 3d ¹⁰ 4s | $^2S_{1/2}$ | 3d ⁹ (² D)4s4p(³ P) | $^4F_{3/2}$ | 0 | 1874730 | 3 | 19,67,107,111° | |
| 53.048 | | | | | 0 | 1885090 | 10 | 19,67,107,111° | |
| 52.753 | 3d ¹⁰ 4s | $^2S_{1/2}$ | 3d ⁹ (² D)4s4p(³ P) | $^2P_{3/2}$ | 0 | 1895630 | 20 | 19,67,107,111° | |
| 52.690 | | | | | $_{1/2}$ | 0 | 1897890 | 10 | 19,67,107,111° |
| 52.476 | 3d ¹⁰ 4s | $^2S_{1/2}$ | 3d ⁹ (² D)4s4p(³ P) | $^4D_{5/2}$ | 0 | 1905630 | 5 | 19,67,107,111° | |
| 52.228 | | $_{1/2}$ | | | $_{3/2}$ | 0 | 1914680 | 5 | 19,67,107,111° |
| 52.476 | 3d ¹⁰ 4p | $^2P_{3/2}$ | 3d ⁹ (² D)4p ² (³ P) | $^4F_{5/2}$ | 267632 | 2173140 | 5 | | 111 |
| 51.668 | | $_{1/2}$ | | | $_{3/2}$ | 236085 | 2171600 | 5 | 107,111° |
| 52.460 | 3d ¹⁰ 4p | $^2P_{1/2}$ | 3d ⁹ (² D)4p ² (¹ D) | $^2S_{1/2}$ | 236085 | 2142670 | 2 | | 107,111° |
| 52.420 | | | 3d ⁹ (² D)4p ² (¹ D) | $^2P_{3/2}$ | 236085 | 2143750 | 2 | | 107,111° |
| 52.024 | 3d ¹⁰ 4p | $^2P_{3/2}$ | 3d ⁹ (² D)4p ² (³ P) | $^2D_{5/2}$ | 236085 | 2158460 | 8 | | 107,111° |
| 52.015 | | $_{3/2}$ | | | $_{5/2}$ | 267632 | 2190210 | 10 | 107,111° |
| 52.00 | 3d ¹⁰ 4p | $^2P_{3/2}$ | 3d ⁹ (² D)4p ² (³ P) | $^2P_{1/2}$ | 267632 | 2190700 | 2 | | 107,111° |
| 51.895 | | $_{3/2}$ | | | $_{3/2}$ | 267632 | 2194630 | 8 | 107,111° |
| 51.161 | | $_{1/2}$ | | | $_{1/2}$ | 236085 | 2190700 | 1 | 107,111° |
| 51.531 | 3d ¹⁰ 4p | $^2P_{3/2}$ | 3d ⁹ (² D)4p ² (¹ D) | $^2F_{5/2}$ | 267632 | 2208270 | 1 | | 107,111° |
| 51.434 | | | 3d ⁹ (² D)4p ² (¹ D) | $^2D_{3/2}$ | 236085 | 2180320 | 1 | | 107,111° |
| 51.398 | 3d ¹⁰ 4s | $^2S_{1/2}$ | 3d ⁹ (² D)4s4p(¹ P) | $^2P_{3/2}$ | 0 | 1945600 | 20 | 19,67,107,111° | |
| 50.788 | | $_{1/2}$ | | | $_{1/2}$ | 0 | 1968970 | 10 | 19,67,107,111° |
| 50.956 | 3d ¹⁰ 4p | $^2P_{3/2}$ | 3d ⁹ (² D)4p ² (¹ S) | $^2D_{5/2}$ | 267632 | 2230110 | 1 | | 107,111° |

Mo xv (Ni-Sequence)

IP = 4391000 ± 50000 cm⁻¹ (544.4 ± 6 eV)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | | Int. | Refs. | |
|----------------|------------------|---------|-----------------------------------|----------------------------------|------|---------|-----|
| 58.832 | 3d ¹⁰ | 1S_0 | 3d ⁹ 4s | 3D_2 | 0 | 1699750 | |
| 57.927 | | | 3d ⁹ 4s | 1D_2 | 0 | 1726310 | |
| 50.928 | 3d ¹⁰ | 1S_0 | 3d ⁹ 4p | 3P_1 | 0 | 1963550 | 2 |
| 50.448 | | | 3d ⁹ 4p | 1P_1 | 0 | 1982230 | 150 |
| 49.914 | 3d ¹⁰ | 1S_0 | 3d ⁹ 4p | 3D_1 | 0 | 2003440 | 100 |
| 36.376 | 3d ¹⁰ | 1S_0 | 3d ⁹ 4f | $(\frac{5}{2}, \frac{5}{2})_1^0$ | 0 | 2749060 | 2.5 |
| 36.060 | | | 3d ⁹ 4f | $(\frac{5}{2}, \frac{7}{2})_1^0$ | 0 | 2773150 | 6.5 |
| 35.368 | 3d ¹⁰ | 1S_0 | 3d ⁹ 4f | $(\frac{3}{2}, \frac{5}{2})_1^0$ | 0 | 2827410 | 12 |
| 29.774 | 3d ¹⁰ | 1S_0 | 3d ⁹ 5f | $(\frac{5}{2}, \frac{7}{2})_1^0$ | 0 | 3358630 | 1 |
| 29.458 | | | 3d ⁹ 5f | $(\frac{3}{2}, \frac{5}{2})_1^0$ | 0 | 3394660 | 2 |

Mo xvi (Co-Sequence) IP = $4604000 \pm 180000 \text{ cm}^{-1}$ ($570.8 \pm 22 \text{ eV}$)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. |
|----------------|---|--|-----------------------------------|---------|---------|
| 3709.2 | 3p ⁶ 3d ⁹ 2D _{5/2} | 3p ⁶ 3d ⁹ 2D _{3/2} | 0 | 26960 | 100 |
| 77.456 | 3p ⁶ 3d ⁹ 2D _{3/2} | 3p ⁵ 3d ¹⁰ 2P _{3/2} ⁰ | 26960 | 1318070 | 8 |
| 75.869 | | | 0 | 1318070 | 25 |
| 69.596 | | | 1/2 | 1463880 | 15 |
| 51.90 | 3d ⁹ 2D _{5/2} | 3d ⁸ (¹ G ₄)4s (4 _{1,2}) _{9/2} | 0 | 1926800 | 74 |
| 52.68 | | | 7/2 | 26960 | 1925200 |
| 53.48 | 3d ⁹ 2D _{5/2} | 3d ⁸ (³ F ₃)4s (3 _{1,2}) _{7/2} | 0 | 1869800 | 74 |
| 54.33 | | | 7/2 | 26960 | 1869800 |
| 54.07 | 3d ⁹ 2D _{5/2} | 3d ⁸ (³ F ₄)4s (4 _{1,2}) _{7/2} | 0 | 1849500 | 74 |
| 47.959 | 3d ⁹ 2D _{5/2} | 3d ⁸ (³ F)4p 4D _{5/2} ⁰ | 0 | 2085110 | 90 |
| 47.382 | | | 5/2 | 2110510 | 30 |
| 47.871 | 3d ⁹ 2D _{3/2} | 3d ⁸ (³ F)4p 4F _{5/2} ⁰ | 26960 | 2115970 | 150 |
| 47.068 | | | 5/2 | 26960 | 2151610 |
| 46.478 | | | 5/2 | 0 | 2151610 |
| 46.378 | | | 5/2 | 0 | 2156190 |
| 47.302 | 3d ⁹ 2D _{5/2} | 3d ⁸ (³ F)4p 4G _{7/2} ⁰ | 0 | 2114080 | 20 |
| 47.262 | | | 5/2 | 0 | 2115860 |
| 47.186 | 3d ⁹ 2D _{3/2} | 3d ⁸ (³ P)4p 4P _{3/2} ⁰ | 26960 | 2146290 | 140 |
| 47.165 | | | 5/2 | 26960 | 2147240 |
| 46.592 | | | 3/2 | 0 | 2146290 |
| 46.573 | | | 5/2 | 0 | 2147240 |
| 46.859 | 3d ⁹ 2D _{5/2} | 3d ⁸ (³ F)4p 2F _{7/2} ⁰ | 0 | 2134060 | 1000 |
| 46.877 | | | 5/2 | 26960 | 2160260 |
| 46.291 | | | 5/2 | 0 | 2160260 |
| 46.841 | 3d ⁹ 2D _{5/2} | 3d ⁸ (³ F)4p 2D _{5/2} ⁰ | 0 | 2134880 | 900 |
| 46.781 | | | 3/2 | 26960 | 2164640 |
| 46.197 | | | 3/2 | 0 | 2164640 |
| 46.712 | 3d ⁹ 2D _{3/2} | 3d ⁸ (¹ D)4p 2F _{5/2} ⁰ | 26960 | 2167770 | 130 |
| 46.131 | | | 5/2 | 0 | 2167770 |
| 45.250 | | | 7/2 | 2209940 | 30 |
| 46.623 | 3d ⁹ 2D _{3/2} | 3d ⁸ (¹ D)4p 2D _{3/2} ⁰ | 26960 | 2171880 | 250 |
| 46.463 | | | 5/2 | 26960 | 2179270 |
| 46.043 | | | 3/2 | 0 | 2171880 |
| 45.887 | | | 5/2 | 0 | 2179270 |
| 46.573 | 3d ⁹ 2D _{3/2} | 3d ⁸ (³ P)4p 4D _{1/2} ⁰ | 26960 | 2174190 | 750 |
| 46.478 | | | 3/2 | 26960 | 2178580 |
| 46.113 | | | 5/2 | 26960 | 2195620 |
| 45.809 | | | 7/2 | 0 | 2182980 |
| 45.545 | | | 5/2 | 0 | 2195620 |
| 46.352 | 3d ⁹ 2D _{5/2} | 3d ⁸ (³ F)4p 2G _{7/2} ⁰ | 0 | 2157400 | 450 |
| 46.229 | 3d ⁹ 2D _{3/2} | 3d ⁸ (¹ D)4p 2P _{3/2} ⁰ | 26960 | 2190160 | 220 |
| 45.659 | | | 3/2 | 0 | 2190160 |
| | | | | | 300 |

Mo xvi (Co-Sequence) - Continued

| Wavelength (Å) | Classification | Energy Levels (cm⁻¹) | | Int. | Refs. |
|----------------|-----------------------|-----------------------------|-------|---------|----------------------|
| 46.043 | 3d⁹ ²D _{3/2} | 3d⁸(³P)4p ²P _{3/2} | 26960 | 2198620 | 1000 19,92° |
| 45.553 | 3/2 | 1/2 | 26960 | 2222270 | 300 4,19,74,92°,108 |
| 45.483 | 5/2 | 3/2 | 0 | 2198620 | 220 4,19,74,92°,108 |
| 46.024 | 3d⁹ ²D _{5/2} | 3d⁸(¹G)4p ²F _{7/2} | 0 | 2172780 | 1600 4,19,74,92°,108 |
| 45.756 | 3/2 | 5/2 | 26960 | 2212530 | 700 19,92°,108 |
| 45.938 | 3d⁹ ²D _{3/2} | 3d⁸(³P)4p ²D _{5/2} | 26960 | 2203870 | 500 4,19,74,92°,108 |
| 45.853 | 3/2 | 3/2 | 26960 | 2207940 | 170 19,92°,108 |
| 45.290 | 5/2 | 3/2 | 0 | 2207940 | 60 19,74,92°,108 |
| 45.867 | 3d⁹ ²D _{3/2} | 3p⁸(³P)4p ²S _{1/2} | 26960 | 2207240 | 150 74,92°,108 |
| 45.000 | 3d⁹ ²D _{5/2} | 3d⁸(¹G)4p ²G _{7/2} | 0 | 2222220 | 220 4,19,74,92°,108 |
| 44.509 | 3d⁹ ²D _{3/2} | 3d⁸(¹S)4p ²P _{1/2} | 26960 | 2273760 | 100 19,74,92°,108 |
| 43.837 | 3/2 | 3/2 | 26960 | 2308200 | 30 19,92° |
| 43.324 | 5/2 | 3/2 | 0 | 2308200 | 60 19,92°,108 |
| 33.992 | 3d⁹ ²D _{3/2} | 3d⁸(³F₂)4f [1]⁹/₂ | 26960 | 2969100 | 60 6°,19 |
| 33.982 | 3d⁹ ²D _{5/2} | 3d⁸(³F₄)4f [3]⁹/₂ | 0 | 2942700 | 40 6 |
| 33.853 | 3d⁹ ²D _{3/2} | 3d⁸(³F₂)4f [2]⁹/₂ | 26960 | 2981300 | 10 6 |
| 33.543 | 5/2 | 5/2 | 0 | 2981300 | 50 6°,19 |
| 33.812 | 3d⁹ ²D _{5/2} | 3d⁸(³F₃)4f [4]⁹/₂ | 0 | 2957500 | 20 6 |
| 33.800 | 3d⁹ ²D _{3/2} | 3d⁸(³P₂)4f [2]⁹/₂ | 26960 | 2985800 | 30 6°,19 |
| 33.760 | 3d⁹ ²D _{5/2} | 3d⁸(³F₃)4f [3]⁹/₂ | 0 | 2962100 | 20 6 |
| 33.740 | 3d⁹ ²D _{5/2} | 3d⁸(³F₃)4f [1]⁹/₂ | 0 | 2963800 | 35 6 |
| 33.680 | 3d⁹ ²D _{5/2} | 3d⁸(³F₃)4f [2]⁹/₂ | 0 | 2969100 | 35 6°,19 |
| 33.591 | 3d⁹ ²D _{5/2} | 3d⁸(³P₂)4f [4]⁹/₂ | 0 | 2977000 | 45 6°,19 |
| 33.479 | 3d⁹ ²D _{5/2} | 3d⁸(³F₂)4f [3]⁹/₂ | 0 | 2985800 | 25 6 |
| 33.429 | 3d⁹ ²D _{5/2} | 3d⁸(³P₂)4f [3]⁹/₂ | 0 | 2991400 | 20 6 |
| 33.347 | 5/2 | 7/2 | 0 | 2998800 | 40 6°,19 |
| 33.293 | 3d⁹ ²D _{5/2} | 3d⁸(³P₀)4f [3]⁹/₂ | 0 | 3003600 | 45 6°,19 |
| 33.264 | 3d⁹ ²D _{5/2} | 3d⁸(³P₁)4f [2]⁹/₂ | 0 | 3006300 | 10 6 |
| 33.235 | 3d⁹ ²D _{5/2} | 3d⁸(³P₁)4f [4]⁹/₂ | 0 | 3008900 | 10 6°,19 |
| 33.211 | 3d⁹ ²D _{3/2} | 3d⁸(¹G₄)4f [1]⁹/₂ | 26960 | 3038000 | 15 6°,19 |
| 33.100 | 3/2 | 1/2 | 26960 | 3048400 | 35 6°,19 |
| 32.916 | 5/2 | 3/2 | 0 | 3038000 | 50 6°,19,74,96 |
| 33.185 | 3d⁹ ²D _{5/2} | 3d⁸(³P₁)4f [3]⁹/₂ | 0 | 3013400 | 25 6 |
| 33.161 | 3d⁹ ²D _{3/2} | 3d⁸(¹G₄)4f [2]⁹/₂ | 26960 | 3043200 | 25 6 |
| 33.120 | 3d⁹ ²D _{5/2} | 3d⁸(¹D₂)4f [3]⁹/₂ | 0 | 3019300 | 35 6 |
| 33.067 | 3d⁹ ²D _{5/2} | 3d⁸(¹D₂)4f [1]⁹/₂ | 0 | 3024200 | 25 6 |
| 32.981 | 3d⁹ ²D _{3/2} | 3d⁸(¹G₄)4f [2]⁹/₂ | 26960 | 3059000 | 70 6°,19,74,96 |
| 32.691 | 5/2 | 3/2 | 0 | 3059000 | 20 6°,19,74 |
| 32.860 | 3d⁹ ²D _{5/2} | 3d⁸(¹G₄)4f [3]⁹/₂ | 0 | 3043200 | 75 6°,19,74,96 |
| 32.323 | 3d⁹ ²D _{3/2} | 3d⁸(¹S₀)4f [3]⁹/₂ | 26960 | 3119100 | 40 6°,19,74 |
| 32.078 | 5/2 | 7/2 | 0 | 3117400 | 30 6°,19,74 |
| 32.061 | 5/2 | 5/2 | 0 | 3119100 | 15 6 |

Mo xvii (Fe-Sequence) IP = $5131000 \pm 200000 \text{ cm}^{-1}$ ($636.2 \pm 25 \text{ eV}$)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. |
|----------------|---|--|-----------------------------------|---------|-------|
| 4124.7 | 3d ⁸ 3F ₄ | 3d ⁸ 3F ₃ | 0 | 24250 | 100 |
| 83.079 | 3p ⁶ 3d ⁸ 1D ₂ | 3p ⁵ 3d ⁹ 1D ₂ ^o | 77960 | 1281600 | 50 |
| 82.556 | 3p ⁶ 3d ⁸ 3P ₁ | 3p ⁵ 3d ⁹ 1D ₂ ^o | 70310 | 1281600 | 20 |
| 81.261 | 2 | 2 | 51000 | 1281600 | 100 |
| 82.317 | 3p ⁶ 3d ⁸ 1S ₀ | 3p ⁵ 3d ⁹ 3D ₁ ^o | 176680 | 1391470 | 10 |
| 81.382 | 3p ⁶ 3d ⁸ 1G ₄ | 3p ⁵ 3d ⁹ 3F ₃ ^o | 82420 | 1311160 | 20 |
| 81.080 | 3p ⁶ 3d ⁸ 1D ₂ | 3p ⁵ 3d ⁹ 3F ₃ ^o | 77960 | 1311160 | 20 |
| 73.122 | 2 | 2 | 77960 | 1445570 | 150 |
| 80.734 | 3p ⁶ 3d ⁸ 3F ₃ | 3p ⁵ 3d ⁹ 3F ₄ ^o | 24250 | 1262860 | 30 |
| 79.186 | 4 | 4 | 0 | 1262860 | 1500 |
| 77.706 | 3 | 3 | 24250 | 1311160 | 20 |
| 76.269 | 4 | 3 | 0 | 1311160 | 600 |
| 70.494 | 2 | 2 | 27030 | 1445570 | 5 |
| 70.367 | 3 | 2 | 24250 | 1445570 | 3 |
| 79.711 | 3p ⁶ 3d ⁸ 3F ₂ | 3p ⁵ 3d ⁹ 1D ₂ ^o | 27030 | 1281600 | 700 |
| 79.532 | 3 | 2 | 24250 | 1281600 | 5 |
| 79.359 | 3p ⁶ 3d ⁸ 3P ₂ | 3p ⁵ 3d ⁹ 3F ₃ ^o | 51000 | 1311160 | 5 |
| 71.705 | 2 | 2 | 51000 | 1445570 | 7 |
| 79.062 | 3p ⁶ 3d ⁸ 1D ₂ | 3p ⁵ 3d ⁹ 3D ₂ ^o | 77960 | 1342800 | 100 |
| 77.396 | 2 | 3 | 77960 | 1370010 | 5 |
| 78.019 | 3p ⁶ 3d ⁸ 3P ₁ | 3p ⁵ 3d ⁹ 3P ₁ ^o | 70310 | 1352050 | 40 |
| 77.898 | 0 | 1 | 68350 | 1352050 | 15 |
| 77.727 | 1 | 0 | 70310 | 1356860 | 30 |
| 76.863 | 2 | 1 | 51000 | 1352050 | 200 |
| 71.359 | 1 | 2 | 70310 | 1471690 | 30 |
| 70.386 | 2 | 2 | 51000 | 1471690 | 15 |
| 77.666 | 3p ⁶ 3d ⁸ 1G ₄ | 3p ⁵ 3d ⁹ 3D ₃ ^o | 82420 | 1370010 | 30 |
| 77.410 | 3p ⁶ 3d ⁸ 3P ₂ | 3p ⁵ 3d ⁹ 3D ₂ ^o | 51000 | 1342800 | 20 |
| 75.816 | 2 | 3 | 51000 | 1370010 | 15 |
| 75.580 | 0 | 1 | 68350 | 1391470 | 15 |
| 74.600 | 2 | 1 | 51000 | 1391470 | 5 |
| 75.840 | 3p ⁶ 3d ⁸ 3F ₃ | 3p ⁵ 3d ⁹ 3D ₂ ^o | 24250 | 1342800 | 150 |
| 74.306 | 3 | 3 | 24250 | 1370010 | 200 |
| 73.289 | 2 | 1 | 27030 | 1391470 | 200 |
| 72.990 | 4 | 3 | 0 | 1370010 | 300 |
| 72.092 | 3p ⁶ 3d ⁸ 1S ₀ | 3p ⁵ 3d ⁹ 1P ₁ ^o | 176680 | 1563830 | 20 |
| 71.750 | 3p ⁶ 3d ⁸ 1D ₂ | 3p ⁵ 3d ⁹ 3P ₂ ^o | 77960 | 1471690 | 5 |
| 69.088 | 3p ⁶ 3d ⁸ 3F ₃ | 3p ⁵ 3d ⁹ 3P ₂ ^o | 24250 | 1471690 | 30 |
| 68.390 | 3p ⁶ 3d ⁸ 1G ₄ | 3p ⁵ 3d ⁹ 1F ₃ ^o | 82420 | 1544660 | 800 |
| 68.188 | 3p ⁶ 3d ⁸ 1D ₂ | 3p ⁵ 3d ⁹ 1F ₃ ^o | 77960 | 1544660 | 3 |
| 67.302 | 3p ⁶ 3d ⁸ 1D ₂ | 3p ⁵ 3d ⁹ 1P ₁ ^o | 77960 | 1563830 | 15 |

Mo xvII (Fe-Sequence) – Continued

| Wavelength (Å) | Classification | Energy Levels (cm ⁻¹) | | Int. | Refs. | |
|----------------|--|---|----------------|--------------------|--------|----------|
| 66.100 | 3p ⁶ 3d ⁸ ³ P ₂ | 3p ⁵ 3d ⁹ ¹ P ₁ ^o | 51000 | 1563830 | 3 | 84 |
| 65.891 | 3p ⁶ 3d ⁸ ³ F ₂ ₃ | 3p ⁵ 3d ⁹ ¹ F ₃ ₃ ^o | 27030 24250 | 1544660 1544660 | 1 4 | 84 84 |
| 44.045 | 3d ⁸ ³ F ₄ | 3d ⁷ 4p (1) ₄ | 0 | 2270430 | 5 | 109 |
| 43.992 | 3d ⁸ ³ P ₂ | 3d ⁷ 4p (3) ₃ | 51000 | 2324090 | 10 | 109 |
| 43.802 | 3d ⁸ ³ P ₂ | 3d ⁷ 4p (4) ₃ | 51000 | 2334250 | 5 | 109 |
| 43.553 | 3d ⁸ ³ P ₁ | 3d ⁷ 4p (9) ₂ | 70310 | 2366360 | 10 | 109 |
| 43.529 | 3d ⁸ ³ F ₄ | 3d ⁷ 4p (2) ₄ | 0 | 2297320 | 15 | 109 |
| 43.510 | 3d ⁸ ³ P ₂ | 3d ⁷ 4p (6) ₃ | 51000 | 2349350 | 8 | 109 |
| 43.446 | 3d ⁸ ¹ G ₄ | 3d ⁷ 4p (7) ₅ | 82420 | 2383840 | 15 | 109 |
| 43.362 | 3d ⁸ ³ P ₁ | 3d ⁷ 4p (10) ₂ | 70310 | 2376490 | 15 | 109 |
| 43.340 | 3d ⁸ ³ F ₂ | 3d ⁷ 4p (4) ₃ | 27030 | 2334250 | 5 | 109 |
| 43.285 | 3d ⁸ ¹ G ₄ | 3d ⁷ 4p (11) ₄ | 82420 | 2393213 | 25 | 109 |
| 43.256 | 3d ⁸ ³ F ₄ | 3d ⁷ 4p (2) ₅ | 0 | 2311790 | 20 | 109 |
| 43.224 | 3d ⁸ ³ P ₁ | 3d ⁷ 4p (8) ₁ | 70310 | 2383830 | 5 | 109 |
| 43.198 | 3d ⁸ ³ P ₂ | 3d ⁷ 4p (9) ₂ | 51000 | 2366360 | 20 | 109 |
| 43.144 | 3d ⁸ ³ P ₁ | 3d ⁷ 4p (9) ₁ | 70310 | 2388150 | 5 | 109 |
| 43.105 | 3d ⁸ ³ F ₄ | 3d ⁷ 4p (3) ₄ | 0 | 2319900 | 25 | 109 |
| 43.029 | 3d ⁸ ³ F ₄ | 3d ⁷ 4p (3) ₃ | 0 | 2324090 | 5 | 109 |
| 42.980 | 3d ⁸ ³ F ₂ | 3d ⁷ 4p (4) ₁ | 27030 | 2353690 | 5 | 109 |
| 42.939 | 3d ⁸ ¹ G ₄ | 3d ⁷ 4p (9) ₅ | 82420 | 2411280 | 15 | 109 |
| 42.891 | 3d ⁸ ¹ G ₄ | 3d ⁷ 4p (13) ₄ | 82420 | 2413910 | 50 | 109 |
| 42.846 | 3d ⁸ ³ F ₄ | 3d ⁷ 4p (4) ₃ | 0 | 2334250 | 30 | 109 |
| 42.817 | 3d ⁸ ¹ D ₂ | 3d ⁷ 4p (16) ₃ | 77960 | 2413480 | 5 | 109 |
| 42.802 | 3d ⁸ ³ F ₃ | 3d ⁷ 4p (8) ₃ | 24250 | 2360950 | 5 | 109 |
| 42.767 | 3d ⁸ ³ F ₄ | 3d ⁷ 4p (4) ₅ | 0 | 2338250 | 5 | 109 |
| 42.704 | 3d ⁸ ³ F ₄ | 3d ⁷ 4p (5) ₄ | 0 | 2341690 | 35 | 109 |
| 42.647 | 3d ⁸ ³ F ₃ | 3d ⁷ 4p (9) ₃ | 24250 | 2368938 | 5 | 109 |
| 42.603 | 3d ⁸ ³ P ₂ | 3d ⁷ 4p (14) ₃ | 51000 | 2398907 | 30 | 109 |
| 42.564 | 3d ⁸ ³ F ₄ | 3d ⁷ 4p (6) ₄ | 0 | 2349981 | 5 | 109 |
| 42.543 | 3d ⁸ ¹ D ₂ | 3d ⁷ 4p (14) ₁ | 77960 | 2429152 | 25 | 109 |

Mo xvii (Fe-Sequence) — Continued

| Wavelength (Å) | Classification | Energy Levels (cm ⁻¹) | | Int. | Refs. | |
|----------------|---------------------------------|--------------------------------------|--------|---------|-------|-----|
| 42.489 | 3d ⁸ 1S ₀ | 3d ⁷ 4p (19) ₁ | 176680 | 2530230 | 30 | 109 |
| 42.473 | 3d ⁸ 1G ₄ | 3d ⁷ 4p (10) ₅ | 82420 | 2436880 | 40 | 109 |
| 42.400 | 3d ⁸ 3F ₄ | 3d ⁷ 4p (5) ₅ | 0 | 2358500 | 50 | 109 |
| 42.387 | 3d ⁸ 3F ₃ | 3d ⁷ 4p (10) ₄ | 24250 | 2383490 | 50 | 109 |
| 42.290 | 3d ⁸ 3P ₁ | 3d ⁷ 4p (19) ₂ | 70310 | 2434930 | 5 | 109 |
| 42.245 | 3d ⁸ 3F ₃ | 3d ⁷ 4p (13) ₃ | 24250 | 2391778 | 30 | 109 |
| 42.200 | 3d ⁸ 3F ₃ | 3d ⁷ 4p (14) ₂ | 24250 | 2394635 | 5 | 109 |
| 42.163 | 3d ⁸ 1D ₂ | 3d ⁷ 4p (20) ₃ | 77960 | 2449993 | 5 | 109 |
| 42.116 | 3d ⁸ 3F ₄ | 3d ⁷ 4p (10) ₃ | 0 | 2374600 | 15 | 109 |
| 42.089 | 3d ⁸ 3P ₂ | 3d ⁷ 4p (18) ₃ | 51000 | 2426890 | 25 | 109 |
| 42.061 | 3d ⁸ 3F ₄ | 3d ⁷ 4p (6) ₅ | 0 | 2377729 | 5 | 109 |
| 41.954 | 3d ⁸ 3F ₄ | 3d ⁷ 4p (7) ₅ | 0 | 2383840 | 19 | 109 |
| 41.908 | 3d ⁸ 3F ₄ | 3d ⁷ 4p (12) ₃ | 0 | 2386200 | 30 | 109 |
| 41.844 | 3d ⁸ 1G ₄ | 3d ⁷ 4p (21) ₃ | 82420 | 2472230 | 20 | 109 |
| 41.767 | 3d ⁸ 3P ₂ | 3d ⁷ 4p (20) ₂ | 51000 | 2445644 | 5 | 109 |
| 41.576 | 3d ⁸ 3F ₃ | 3d ⁷ 4p (15) ₄ | 24250 | 2430370 | 5 | 109 |
| 41.490 | 3d ⁸ 3F ₄ | 3d ⁷ 4p (9) ₅ | 0 | 2411280 | 5 | 109 |
| 41.446 | 3d ⁸ 3P ₁ | 3d ⁷ 4p (23) ₂ | 70310 | 2483140 | 5 | 109 |
| 41.040 | 3d ⁸ 1G ₄ | 3d ⁷ 4p (23) ₃ | 82420 | 2519060 | 10 | 109 |

Mo xviii (Mn-Sequence) IP = 5660000 ± 270000 cm⁻¹ (701.7 ± 28 eV)

| Wavelength (Å) | Classification | Energy | Levels (cm ⁻¹) | Int. | Refs. | |
|----------------|--|---|----------------------------|---------|-------|-----|
| 83.428 | 3p ⁶ 3d ⁷ 4F _{9/2} | 3p ⁵ 3d ⁸ (1) _{11/2} | 0 | 1198630 | 10 | 110 |
| 81.988 | 3p ⁶ 3d ⁷ 4P _{5/2} | 3p ⁵ 3d ⁸ (2) _{7/2} | 60740 | 1280420 | 10 | 110 |
| 81.859 | 3p ⁶ 3d ⁷ 2G _{9/2} | 3p ⁵ 3d ⁸ (2) _{9/2} | 62500 | 1284110 | 25 | 110 |
| 80.686 | 3p ⁶ 3d ⁷ 2G _{7/2} | 3p ⁵ 3d ⁸ (4) _{7/2} | 81500 | 1320790 | 30 | 110 |
| 80.492 | 3p ⁶ 3d ⁷ 4F _{9/2} | 3p ⁵ 3d ⁸ (1) _{9/2} | 0 | 1242360 | 45 | 110 |
| 80.364 | 3p ⁶ 3d ⁷ 2G _{9/2} | 3p ⁵ 3d ⁸ (3) _{7/2} | 62500 | 1306770 | 20 | 110 |
| 80.201 | 3p ⁶ 3d ⁷ 4P _{5/2} | 3p ⁵ 3d ⁸ (3) _{5/2} | 60740 | 1307600 | 30 | 110 |
| 79.653 | 3p ⁶ 3d ⁷ 2H _{9/2} | 3p ⁵ 3d ⁸ (5) _{7/2} | 107650 | 1362690 | 20 | 110 |
| 79.457 | 3p ⁶ 3d ⁷ 4F _{7/2} | 3p ⁵ 3d ⁸ (2) _{7/2} | 21850 | 1280420 | 30 | 110 |
| 78.735 | 3p ⁶ 3d ⁷ 2H _{11/2} | 3p ⁵ 3d ⁸ (3) _{9/2} | 84900 | 1354790 | 40 | 110 |
| 78.255 | 3p ⁶ 3d ⁷ 3D _{5/2} | 3p ⁵ 3d ⁸ (4) _{3/2} | 94000 | 1372180 | 10 | 110 |
| 78.053 | 3p ⁶ 3d ⁷ 2G _{7/2} | 3p ⁵ 3d ⁸ (5) _{7/2} | 81500 | 1362690 | 25 | 110 |
| 77.875 | 3p ⁶ 3d ⁷ 4F _{9/2} | 3p ⁵ 3d ⁸ (2) _{9/2} | 0 | 1284110 | 40 | 110 |
| 77.552 | 3p ⁶ 3d ⁷ 3D _{5/2} | 3p ⁵ 3d ⁸ (6) _{5/2} | 94000 | 1383380 | 10 | 110 |
| 77.415 | 3p ⁶ 3d ⁷ 2G _{9/2} | 3p ⁵ 3d ⁸ (3) _{9/2} | 62500 | 1354790 | 45 | 110 |
| 76.992 | 3p ⁶ 3d ⁷ 4F _{7/2} | 3p ⁵ 3d ⁸ (4) _{7/2} | 21850 | 1320790 | 10 | 110 |
| 76.870 | 3p ⁶ 3d ⁷ 4F _{7/2} | 3p ⁵ 3d ⁸ (4) _{5/2} | 21850 | 1322740 | 45 | 110 |
| 76.812 | 3p ⁶ 3d ⁷ 4P _{5/2} | 3p ⁵ 3d ⁸ (5) _{7/2} | 60740 | 1362690 | 15 | 110 |
| 76.647 | 3p ⁶ 3d ⁷ 4F _{5/2} | 3p ⁵ 3d ⁸ (3) _{3/2} | 31440 | 1336120 | 25 | 110 |
| 76.529 | 3p ⁶ 3d ⁷ 4F _{9/2} | 3p ⁵ 3d ⁸ (3) _{7/2} | 0 | 1306770 | 30 | 110 |
| 75.712 | 3p ⁶ 3d ⁷ 4F _{9/2} | 3p ⁵ 3d ⁸ (4) _{7/2} | 0 | 1320790 | 20 | 110 |
| 75.309 | 3p ⁶ 3d ⁷ 4P _{5/2} | 3p ⁵ 3d ⁸ (5) _{3/2} | 60740 | 1388018 | 20 | 110 |
| 74.407 | 3p ⁶ 3d ⁷ 2G _{9/2} | 3p ⁵ 3d ⁸ (6) _{7/2} | 62500 | 1406680 | 30 | 110 |
| 74.303 | 3p ⁶ 3d ⁷ 4P _{5/2} | 3p ⁵ 3d ⁸ (6) _{7/2} | 60740 | 1406680 | 45 | 110 |
| 74.280 | 3p ⁶ 3d ⁷ 4F _{5/2} | 3p ⁵ 3d ⁸ (5) _{5/2} | 31440 | 1377840 | 25 | 110 |
| 74.020 | 3p ⁶ 3d ⁷ 2F _{7/2} | 3p ⁵ 3d ⁸ (7) _{7/2} | 141650 | 1492600 | 15 | 110 |
| 73.944 | 3p ⁶ 3d ⁷ 4F _{3/2} | 3p ⁵ 3d ⁸ (5) _{3/2} | 35936 | 1388018 | 10 | 110 |
| 73.812 | 3p ⁶ 3d ⁷ 4F _{9/2} | 3p ⁵ 3d ⁸ (3) _{9/2} | 0 | 1354790 | 15 | 110 |
| 73.747 | 3p ⁶ 3d ⁷ 4F _{7/2} | 3p ⁵ 3d ⁸ (5) _{5/2} | 21850 | 1377840 | 20 | 110 |
| 73.676 | 3p ⁶ 3d ⁷ 4F _{5/2} | 3p ⁵ 3d ⁸ (5) _{3/2} | 31440 | 1388018 | 15 | 110 |

Mo XVIII (Mn-Sequence) — Continued

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. | |
|----------------|--|---|-----------------------------------|---------|-------|---------|
| 73.446 | 3p ⁶ 3d ⁷ 4F _{7/2} | 3p ⁵ 3d ⁸ (6) _{5/2} | 21850 | 1383380 | 10 | 110 |
| 73.380 | 3p ⁶ 3d ⁷ 4F _{9/2} | 3p ⁵ 3d ⁸ (5) _{7/2} | 0 | 1362690 | 20 | 110 |
| 72.679 | 3p ⁶ 3d ⁷ 2F _{7/2} | 3p ⁵ 3d ⁸ (8) _{7/2} | 141650 | 1517570 | 15 | 110 |
| 72.211 | 3p ⁶ 3d ⁷ 4F _{5/2} | 3p ⁵ 3d ⁸ (6) _{7/2} | 21850 | 1406680 | 30 | 110 |
| 72.171 | 3p ⁶ 3d ⁷ 3D _{5/2} | 3p ⁵ 3d ⁸ (9) _{5/2} | 94000 | 1479650 | 25 | 110 |
| 72.089 | 3p ⁶ 3d ⁷ 2H _{9/2} | 3p ⁵ 3d ⁸ (4) _{9/2} | 107650 | 1494810 | 35 | 110 |
| 71.523 | 3p ⁶ 3d ⁷ 2G _{7/2} | 3p ⁵ 3d ⁸ (9) _{5/2} | 81500 | 1479650 | 25 | 110 |
| 71.461 | 3p ⁶ 3d ⁷ 1D _{5/2} | 3p ⁵ 3d ⁸ (9) _{7/2} | 210770 | 1610200 | 25 | 110 |
| 71.196 | 3p ⁶ 3d ⁷ 1D _{3/2} | 3p ⁵ 3d ⁸ (11) _{5/2} | 210770 | 1615600 | 20 | 110 |
| 71.089 | 3p ⁶ 3d ⁷ 4F _{9/2} | 3p ⁵ 3d ⁸ (6) _{7/2} | 0 | 1406680 | 25 | 110 |
| 70.926 | 3p ⁶ 3d ⁷ 2H _{9/2} | 3p ⁵ 3d ⁸ (8) _{7/2} | 107650 | 1517570 | 30 | 110 |
| 70.121 | 3p ⁶ 3d ⁷ 2F _{5/2} | 3p ⁵ 3d ⁸ (9) _{3/2} | 129033 | 1553198 | 15 | 110 |
| 69.929 | 3p ⁶ 3d ⁷ 2G _{9/2} | 3p ⁵ 3d ⁸ (7) _{7/2} | 62500 | 1492600 | 35 | 110 |
| 69.675 | 3p ⁶ 3d ⁷ 2G _{7/2} | 3p ⁵ 3d ⁸ (8) _{7/2} | 81500 | 1517570 | 25 | 110 |
| 69.212 | 3p ⁶ 3d ⁷ 1D _{3/2} | 3p ⁵ 3d ⁸ (7) _{1/2} | 199694 | 1643278 | 25 | 110 |
| 68.727 | 3p ⁶ 3d ⁷ 2G _{9/2} | 3p ⁵ 3d ⁸ (8) _{7/2} | 62500 | 1517570 | 30 | 110 |
| 68.128 | 3p ⁶ 3d ⁷ 2F _{5/2} | 3p ⁵ 3d ⁸ (10) _{3/2} | 129033 | 1597386 | 30 | 110 |
| 67.984 | 3p ⁶ 3d ⁷ 4F _{7/2} | 3p ⁵ 3d ⁸ (7) _{7/2} | 21850 | 1492600 | 22 | 110 |
| 67.845 | 3p ⁶ 3d ⁷ 2F _{7/2} | 3p ⁵ 3d ⁸ (11) _{5/2} | 141650 | 1615600 | 40 | 19,110° |
| 67.648 | 3p ⁶ 3d ⁷ 2G _{7/2} | 3p ⁵ 3d ⁸ (10) _{5/2} | 81500 | 1559730 | 40 | 19,110° |
| 67.141 | 3p ⁶ 3d ⁷ 2H _{11/2} | 3p ⁵ 3d ⁸ (5) _{9/2} | 84900 | 1574310 | 48 | 19,110° |
| 66.536 | 3p ⁶ 3d ⁷ 2H _{9/2} | 3p ⁵ 3d ⁸ (9) _{7/2} | 107650 | 1610200 | 55 | 19,110° |
| 66.146 | 3p ⁶ 3d ⁷ 2G _{9/2} | 3p ⁵ 3d ⁸ (5) _{9/2} | 62500 | 1574310 | 25 | 110 |

Mo XXIII (Ca-Sequence) IP = 8230000 ± 80000 cm⁻¹ (1020 ± 10 eV)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. |
|----------------|---|---|-----------------------------------|-------|-------|
| 3554.3 | 3p ⁶ 3d ² 3F ₂ | 3p ⁶ 3d ² 3F ₃ | 0 | 28135 | 100 |

Mo XXIV (K-Sequence) IP = $8730000 \pm 89000 \text{ cm}^{-1}$ ($1083 \pm 11 \text{ eV}$)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | | Int. | Refs. | | |
|----------------|----------------|--------------------|-----------------------------------|----------------------|-------|---------|-----|----|
| 2687.3 | 3d | $^2\text{D}_{3/2}$ | 3d | $^2\text{D}_{5/2}$ | 0 | 37212 | 100 | |
| 21.854 | 3d | $^2\text{D}_{5/2}$ | 4f | $^2\text{F}_{7/2}^o$ | 37212 | 4613000 | 5 | 96 |
| 21.684 | | $_{3/2}$ | | $_{5/2}$ | 0 | 4611700 | 5 | 96 |

Mo XXV (Ar-Sequence) IP = $10190000 \pm 100000 \text{ cm}^{-1}$ ($1264 \pm 13 \text{ eV}$)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | | Int. | Refs. | | |
|----------------|-----------------|----------------|-----------------------------------|------------------|------|---------|---|----|
| 18.500 | 3p ⁶ | $^1\text{S}_0$ | 3p ⁵ 4d | $^1\text{P}_1^o$ | 0 | 5405400 | 5 | 96 |
| 17.979 | 3p ⁶ | $^1\text{S}_0$ | 3p ⁵ 4d | $^3\text{D}_1^o$ | 0 | 5562000 | 6 | 96 |

Mo XXVI (Cl-Sequence) IP = $10680000 \pm 100000 \text{ cm}^{-1}$ ($1324 \pm 13 \text{ eV}$)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | | Int. | Refs. | |
|----------------|---------------------------------|----------------------|-----------------------------------|----------------------|------|--------|----|
| 534.9 | 3s ² 3p ⁵ | $^2\text{P}_{3/2}^o$ | 3s ² 3p ⁵ | $^2\text{P}_{1/2}^o$ | 0 | 186950 | 36 |

Mo XXVII (S-Sequence) IP = $11190000 \pm 110000 \text{ cm}^{-1}$ ($1387 \pm 14 \text{ eV}$)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | | Int. | Refs. | |
|----------------|---------------------------------|----------------|-----------------------------------|----------------|--------|--------|--------|
| 2351.5 | 3s ² 3p ⁴ | $^3\text{P}_1$ | 3s ² 3p ⁴ | $^1\text{D}_2$ | 175520 | 218050 | 36,55° |
| 458.6 | | $_{2}$ | | $_{2}$ | 0 | 218050 | 36 |
| 569.8 | 3s ² 3p ⁴ | $^3\text{P}_2$ | 3s ² 3p ⁴ | $^3\text{P}_1$ | 0 | 175520 | 36 |
| 397.2 | 3s ² 3p ⁴ | $^3\text{P}_1$ | 3s ² 3p ⁴ | $^1\text{S}_0$ | 175520 | 427300 | 36,55° |

Mo XXVIII (P-Sequence) IP = $11690000 \pm 110000 \text{ cm}^{-1}$ ($1449 \pm 14 \text{ eV}$)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | | Int. | Refs. | |
|----------------|---------------------------------|----------------------|-----------------------------------|----------------------|--------|--------|----|
| 2286.1 | 3s ² 3p ³ | $^2\text{D}_{3/2}^o$ | 3s ² 3p ³ | $^2\text{D}_{5/2}^o$ | 156960 | 200700 | 36 |
| 643.0 | 3s ² 3p ³ | $^2\text{P}_{1/2}^o$ | 3s ² 3p ³ | $^2\text{P}_{3/2}^o$ | 257930 | 413450 | 37 |
| 637.1 | 3s ² 3p ³ | $^4\text{S}_{3/2}^o$ | 3s ² 3p ³ | $^2\text{D}_{3/2}^o$ | 0 | 156960 | 37 |
| 498.2 | | $_{3/2}$ | | $_{5/2}$ | 0 | 200700 | 37 |
| 470.0 | 3s ² 3p ³ | $^2\text{D}_{5/2}^o$ | 3s ² 3p ³ | $^2\text{P}_{3/2}^o$ | 200700 | 413450 | 37 |
| 389.9 | | $_{3/2}$ | | $_{3/2}$ | 156960 | 413450 | 37 |
| 387.7 | 3s ² 3p ³ | $^4\text{S}_{3/2}^o$ | 3s ² 3p ³ | $^2\text{P}_{1/2}^o$ | 0 | 257930 | 37 |

Mo xxix (Si-Sequence) IP = $12380000 \pm 120000 \text{ cm}^{-1}$ ($1535 \pm 15 \text{ eV}$)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. |
|----------------|---------------------|---------------------|-----------------------------------|--------|---------|
| 2841.9 | $3s^2 3p^2 {}^3P_1$ | $3s^2 3p^2 {}^3P_2$ | 161670 | 196870 | 36,100° |
| 618.5 | 0 | 1 | 0 | 161670 | 36 |
| 530.3 | $3s^2 3p^2 {}^3P_2$ | $3s^2 3p^2 {}^1D_2$ | 196870 | 385450 | 36,55° |
| 446.9 | 1 | 2 | 161670 | 385450 | 36,55° |
| 325.3 | $3s^2 3p^2 {}^3P_1$ | $3s^2 3p^2 {}^1S_0$ | 161670 | 469100 | 36 |

Mo xxx (Al-Sequence) IP = $12910000 \pm 130000 \text{ cm}^{-1}$ ($1601 \pm 16 \text{ eV}$)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. |
|----------------|-------------------------|-------------------------|-----------------------------------|---------|-------|
| 490.1 | $3s^2 3p {}^2P_{1/2}^o$ | $3s^2 3p {}^2P_{3/2}^o$ | 0 | 204040 | 36 |
| 108.29 | $3s^2 3p {}^2P_{3/2}^o$ | $3s^2 3d {}^2D_{5/2}$ | 204040 | 1127500 | 17 |
| 92.511 | 1/2 | 3/2 | 0 | 1081000 | 17 |
| 18.056 | $3s^2 3d {}^2D_{5/2}$ | $3s^2 4f {}^2F_{7/2}^o$ | 1127500 | 6666000 | 17 |
| 17.964 | 3/2 | 5/2 | 1081000 | 6648000 | 17 |
| 18.004 | $3s^2 3p {}^2P_{3/2}^o$ | $3s^2 4s {}^2S_{1/2}$ | 204040 | 5760000 | 17 |
| 17.355 | 1/2 | 1/2 | 0 | 5760000 | 17 |

Mo xxxi (Mg-Sequence) IP = $13920000 \pm 140000 \text{ cm}^{-1}$ ($1726 \pm 17 \text{ eV}$)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. |
|----------------|------------------|------------------|-----------------------------------|---------|----------------|
| 609.8 | $3s3p {}^3P_0^o$ | $3s3p {}^1P_1^o$ | 698100 | 862140 | 36 |
| 577.5 | $3s3p {}^3P_1^o$ | $3s3p {}^3P_2^o$ | 524900 | 698100 | 36 |
| 190.5 | $3s^2 {}^1S_0$ | $3s3p {}^3P_1^o$ | 0 | 524900 | 48 |
| 115.991 | $3s^2 {}^1S_0$ | $3s3p {}^1P_1^o$ | 0 | 862140 | 9 17,54,74,88° |
| 113.896 | $3s3p {}^1P_1^o$ | $3s3d {}^1D_2$ | 862140 | 1740130 | 10 17,74,88° |
| 112.654 | $3s3p {}^3P_2^o$ | $3s3d {}^3D_3$ | 698100 | 1585770 | 10 17,74,88° |
| 96.52 | 1 | 2 | 524900 | 1561000 | 4 74 |
| 17.871 | $3s3d {}^1D_2$ | $3s4f {}^1F_3^o$ | 1740130 | 7335800 | 17 |
| 17.578 | $3s3d {}^3D_3$ | $3s4f {}^3F_3^o$ | 1585770 | 7275000 | 17 |
| 17.556 | 3 | 4 | 1585770 | 7281800 | 17 |
| 17.500 | 2 | 3 | 1561000 | 7275000 | 17 |
| 17.445 | 1 | 2 | | | 17 |
| 14.928 | $3s^2 {}^1S_0$ | $3s4p {}^3P_0^o$ | 0 | 6698800 | 17 |
| 14.745 | $3s^2 {}^1S_0$ | $3s4p {}^1P_0^o$ | 0 | 6782000 | 17°,74,96 |

Mo xxxii (Na-Sequence) IP = $14445000 \pm 4000 \text{ cm}^{-1}$ ($1791.0 \pm 0.5 \text{ eV}$)

| Wavelength (Å) | Classification | Energy Levels (cm ⁻¹) | | Int. | Refs. |
|----------------|----------------------------------|-----------------------------------|---------|----------|-------|
| 176.62 | 3s ² S _{1/2} | 3p ² P _{1/2} | 0 | 566190 | 4 |
| 127.814 | _{1/2} | _{3/2} | 0 | 782390 | 10 |
| 126.937 | 3p ² P _{3/2} | 3d ² D _{5/2} | 782390 | 1570180 | 9 |
| 104.226 | _{1/2} | _{3/2} | 566190 | 1525280 | 9 |
| 18.72 | 3d ² D _{3/2} | 4p ² P _{1/2} | 1525280 | 6868100 | 1 |
| 18.591 | _{5/2} | _{3/2} | 1570180 | 6956000 | 3 |
| 18.431 | _{3/2} | _{3/2} | 1525280 | 6956000 | 5 |
| 17.165 | 3d ² D _{5/2} | 4f ² F _{5/2} | 1570180 | 7391400 | 3 |
| 17.148 | _{5/2} | _{7/2} | 1570180 | 7401800 | 8 |
| 17.047 | _{3/2} | _{5/2} | 1525280 | 7391400 | 7 |
| 17.099 | 3p ² P _{3/2} | 4s ² S _{1/2} | 782390 | 6629500 | 2 |
| 16.496 | _{1/2} | _{1/2} | 566190 | 6629500 | 2 |
| 15.509 | 3p ² P _{3/2} | 4d ² D _{3/2} | 782390 | 7231100 | 2 |
| 15.460 | _{3/2} | _{5/2} | 782390 | 7250700 | 10 |
| 15.002 | _{1/2} | _{3/2} | 566190 | 7231100 | 6 |
| 14.560 | 3s ² S _{1/2} | 4p ² P _{1/2} | 0 | 6868100 | 6 |
| 14.376 | _{1/2} | _{3/2} | 0 | 6956000 | 10 |
| 12.284 | 3d ² D _{5/2} | 5p ² P _{3/2} | 1570180 | 9735200 | 1 |
| 11.931 | 3d ² D _{5/2} | 5f ² F _{7/2} | 1570180 | 9951700 | 6 |
| 11.875 | _{3/2} | _{5/2} | 1525280 | 9946300 | 5 |
| 10.994 | 3p ² P _{3/2} | 5d ² D _{5/2} | 782390 | 9878300 | 7 |
| 10.749 | _{1/2} | _{3/2} | 566190 | 9869400 | 4 |
| 10.323 | 3s ² S _{1/2} | 5p ² P _{1/2} | 0 | 9687100 | 2 |
| 10.272 | _{1/2} | _{3/2} | 0 | 9735200 | 3 |
| 10.241 | 3d ² D _{5/2} | 6f ² F _{7/2} | 1570180 | 11334800 | 3 |
| 10.197 | _{3/2} | _{5/2} | 1525280 | 11332100 | 2 |

Mo xxxiii (Ne-Sequence) IP = 34330000 ± 340000 cm⁻¹ (4257 ± 42 eV)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. | |
|----------------|---|---|-----------------------------------|----------|-------|-----------------------------|
| 5.204 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{3/2} ^o)3s (_{2,2} ^{3,1}) ^o | 0 | 19220000 | 9 | 2,16,52°,96 |
| 4.980 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{1/2} ^o)3s (_{2,2} ^{1,1}) ^o | 0- | 20080000 | 6 | 2,16,52°,96 |
| 4.8516 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{3/2} ^o)3d (_{2,2} ^{3,3}) ^o | 0 | 20612000 | 7 | 3°,16,52 ^A |
| 4.8044 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{3/2} ^o)3d (_{2,2} ^{3,5}) ^o | 0 | 20814000 | 10 | 2,3°,16,52 ^A ,96 |
| 4.6312 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{1/2} ^o)3d (_{2,2} ^{1,3}) ^o | 0 | 21593000 | 8 | 2,3°,16,52 ^A |
| 4.4647 | 2s ² 2p ⁶ 1S ₀ | 2s2p ⁶ (² S _{1/2} ^o)3p (_{2,2} ^{1,1}) ^o | 0 | 22398000 | 5 | 2,3°,16,52 ^A |
| 4.4181 | 2s ² 2p ⁶ 1S ₀ | 2s2p ⁶ (² S _{1/2} ^o)3p (_{2,2} ^{1,3}) ^o | 0 | 22634000 | 4 | 2,3°,16,52 ^A |
| 3.809 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{3/2} ^o)4s (_{2,2} ^{3,1}) ^o | 0 | 26250000 | 2 | 16°,18 |
| 3.684 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{3/2} ^o)4d (_{2,2} ^{3,5}) ^o | 0 | 27140000 | 12 | 16°,18 |
| 3.763 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{1/2} ^o)4s (_{2,2} ^{1,1}) ^o | 0 | 26570000 | 1.2 | 16°,18 |
| 3.636 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{1/2} ^o)4d (_{2,2} ^{1,3}) ^o | 0 | 27500000 | 7 | 16°,18 |
| 3.42 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{3/2} ^o)5d (_{2,2} ^{3,5}) ^o | 0 | 29200000 | 3.5 | 18 |
| 3.32 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{1/2} ^o)5d (_{2,2} ^{1,3}) ^o | 0 | 30100000 | 2.3 | 18 |
| 3.26 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{3/2} ^o)6d (_{2,2} ^{3,5}) ^o | 0 | 30700000 | 1.8 | 18 |
| 3.18 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{1/2} ^o)6d (_{2,2} ^{1,3}) ^o | 0 | 31400000 | 1.1 | 18 |
| 3.18 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{3/2} ^o)7d (_{2,2} ^{3,5}) ^o | 0 | 31400000 | 1.1 | 18 |
| 3.09 | 2p ⁶ 1S ₀ | 2p ⁵ (² P _{1/2} ^o)7d (_{2,2} ^{1,3}) ^o | 0 | 32400000 | 0.8 | 18 |

Mo XXXIV (F-Sequence) IP = $35730000 \pm 350000 \text{ cm}^{-1}$ ($4430 \pm 44 \text{ eV}$)

| Wavelength (Å) | Classification | Energy Levels (cm ⁻¹) | | | Int. | Refs. |
|---------------------|---------------------------|-----------------------------------|--------|----------|------|--------|
| 112.80 ^p | $2p^5 \ ^2P_{3/2}^o$ | $2p^5 \ ^2P_{1/2}^o$ | 0 | 886200 | | 38,86° |
| 56.527 | $2s^2 2p^5 \ ^2P_{1/2}^o$ | $2s2p^6 \ ^2S_{1/2}$ | 886200 | 2665300 | | 86 |
| 37.661 | $3/2$ | $1/2$ | 0 | 2665300 | | 86 |
| 5.536 | $2p^5 \ ^2P_{3/2}^o$ | $2p^4(^3P)3d \ ^2F_{5/2}$ | 0 | 18060000 | | 14 |
| 4.506 | $2p^5 \ ^2P_{3/2}^o$ | $2p^4(^1D)3d \ ^2F_{5/2}$ | 0 | 22193000 | | 14 |
| 4.550 | $2p^5 \ ^2P_{3/2}^o$ | $2p^4(^3P)3d \ ^2D_{3/2}$ | 0 | 21978000 | | 14 |
| 4.521 | $3/2$ | $5/2$ | 0 | 22119000 | | 14 |
| 4.503 | $2p^5 \ ^2P_{3/2}^o$ | $2p^4(^1D)3d \ ^2D_{5/2}$ | 0 | 22207000 | | 14 |
| 4.480 | $3/2$ | $3/2$ | 0 | 22321000 | | 14 |
| 4.493 | $2p^5 \ ^2P_{1/2}^o$ | $2p^4(^1S)3d \ ^2D_{3/2}$ | 886200 | 23143000 | | 14 |
| 4.512 | $2p^5 \ ^2P_{3/2}^o$ | $2p^4(^1D)3d \ ^2S_{1/2}$ | 0 | 22163000 | | 14 |
| 4.506 | $2p^5 \ ^2P_{3/2}^o$ | $2p^4(^1D)3d \ ^2P_{3/2}$ | 0 | 22193000 | | 14 |
| 4.472 | $3/2$ | $1/2$ | 0 | 22361000 | | 14 |

Mo XL (Li-Sequence) IP = $46074000 \pm 40000 \text{ cm}^{-1}$ ($5712.4 \pm 5 \text{ eV}$)

| Wavelength (Å) | Classification | Energy Levels (cm ⁻¹) | | | Int. | Refs. |
|----------------|-------------------------|-----------------------------------|---------|-----------|------|---------|
| 0.6912 | $1s^2 2p \ ^2P_{1/2}^o$ | $1s2p^2 \ ^4P_{3/2}$ | 691591 | 145366000 | | 10°,106 |
| 0.6859 | $1/2$ | $5/2$ | 691591 | 146484000 | | 10°,106 |
| 0.6893 | $1s^2 2p \ ^2P_{1/2}^o$ | $1s2p^2 \ ^2P_{3/2}$ | 691591 | 145766000 | | 10°,106 |
| 0.6893 | $1s^2 2s \ ^2S_{1/2}$ | $1s2s(^3S)2p \ ^2P_{3/2}^o$ | 0 | 145075000 | | 10 |
| 0.6893 | $1s^2 2p \ ^2P_{1/2}^o$ | $1s2p^2 \ ^2D_{3/2}$ | 691591 | 145265000 | | 10°,106 |
| 0.6885 | $1s^2 2p \ ^2P_{3/2}^o$ | $1s2p^2 \ ^2S_{1/2}$ | 1705591 | 146948000 | | 10°,106 |
| 0.6885 | $1s^2 2s \ ^2S_{1/2}$ | $1s2s(^1S)2p \ ^2P_{1/2}^o$ | 0 | 145243000 | | 10 |
| 0.6859 | $1s^2 2s \ ^2S_{1/2}$ | $1s2s2p \ ^4P_{5/2}^o$ | 0 | 145793000 | | 10 |

Mo XLI (He-Sequence) IP = $192047000 \pm 200000 \text{ cm}^{-1}$ ($23811 \pm 25 \text{ eV}$)

| Wavelength (Å) | Classification | Energy Levels (cm ⁻¹) | | | Int. | Refs. |
|----------------|------------------|-----------------------------------|-----------|-----------|------|-------------|
| 0.6923 | $1s^2 \ ^1S_0$ | $1s2p \ ^3P_1^o$ | 0 | 144454000 | | 10°,105,106 |
| 0.6878 | 0 | 2 | 0 | 145463000 | | 10°,105,106 |
| 0.6870 | $1s^2 \ ^1S_0$ | $1s2p \ ^1P_1^o$ | 0 | 145657000 | | 10°,105,106 |
| 0.672 | $1s2p \ ^1P_1^o$ | $2p^2 \ ^1S_0$ | 145657000 | 294470000 | | 105°,106 |
| 0.672 | $1s2p \ ^1P_1^o$ | $2p^2 \ ^1D_2$ | 145657000 | 294470000 | | 105°,106 |
| 0.672 | $1s2s \ ^3S_1$ | $2s2p \ ^3P_2^o$ | 143971000 | 292800000 | | 105°,106 |

Mo XLII (H-Sequence) IP = 198180000 ± 10000 cm⁻¹ (24571.2 ± 1.2 eV)

| Wavelength (Å) | Classification | | Energy Levels (cm ⁻¹) | Int. | Refs. |
|----------------|----------------------------------|----------------------------------|-----------------------------------|------|---------|
| 0.6685 | 1s ² S _{1/2} | 2p ² P _{3/2} | 0 149500200 | | 45,105° |
| 0.5701 | 1s ² S _{1/2} | 3p ² P _{3/2} | 0 176501610 | | 45,105° |
| 0.5701 | 1/2 | 1/2 | 0 176142500 | | 45,105° |

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