

WCAG 2.0 A and AA Requirements

Name of Product	Knovel
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Document Description	This document rates Knovel according to the W3C WCAG 2.0 A and AA requirements.
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Product Version Number	
Product Release Date	
Testing Tools and Methods	Hands-on keyboard operation Firebug/Code inspection JAWS 17 on Mozilla Firefox 55 and MS IE 11 on Windows 7 NVDA screen reader Open Ajax Alliance (OAA) side bar ColorZilla Wave toolbar Color Contrast Analyzer W3C WAI Pages W3C Markup Validation Service Elsevier Accessibility Checklist: http://romeo.elsevier.com/accessibility_checklist/
Document Sections	The review document below includes all WCAG 2 A and AA checkpoints and is organized into 6 logical sections: <ul style="list-style-type: none">• Visuals• Keyboard• Headings and Structure• Labeling• Multimedia• Usability
Pages Covered	Homepage, Navigation, Browse, Property Search, Unit Converter
Product Accessibility Statement	

WCAG 2.0 Success Criterion	Level	Evaluation
1.1.1: Non-text Content	A	Pass with exceptions
1.2.1: Audio-only and Video-only (Prerecorded)	A	N/A
1.2.2: Captions (Prerecorded)	A	N/A
1.2.3: Audio Description or Full Text Alternative	A	N/A
1.2.4: Captions (Live)	AA	N/A
1.2.5: Audio Description	AA	N/A
1.3.1: Info and Relationships	A	Fail
1.3.2: Meaningful Sequence	A	Pass with exceptions
1.3.3: Sensory Characteristics	A	Pass
1.4.1: Use of Color	A	Pass with exceptions
1.4.2: Audio Control	A	N/A
1.4.3: Contrast (Minimum)	AA	Pass with exceptions
1.4.4: Resize text	AA	Pass with exceptions
1.4.5: Images of Text	AA	Pass
2.1.1: Keyboard	A	Pass with exceptions
2.1.2: No Keyboard Trap	A	Pass with exceptions
2.2.1: Timing Adjustable	A	N/A
2.2.2: Pause, Stop, Hide	A	Fail
2.3.1: Three Flashes or Below Threshold	A	N/A
2.4.1: Bypass Blocks	A	Fail
2.4.2: Page Titled	A	Pass
2.4.3: Focus Order	A	Pass with exceptions
2.4.4: Link Purpose (In Context)	A	Pass with exceptions
2.4.5: Multiple Ways	AA	Pass
2.4.6: Headings and Labels	AA	Pass with exceptions
2.4.7: Focus Visible	AA	Pass with exceptions
3.1.1: Language of Page	A	Pass with exceptions
3.1.2: Language of Parts	AA	Pass
3.2.1: On Focus	A	Pass with exceptions
3.2.2: On Input	A	Pass
3.2.3: Consistent Navigation	AA	Pass
3.2.4: Consistent Identification	AA	Pass
3.3.1: Error Identification	A	Pass with exceptions
3.3.2: Labels or Instructions	A	Pass with exceptions
3.3.3: Error Suggestion	AA	Pass with exceptions
3.3.4: Error Prevention (Legal, Financial, Data)	AA	N/A
4.1.1: Parsing	A	Pass
4.1.2: Name, Role, Value	A	Pass with exceptions

Visuals

WCAG 2.0 Checkpoint	Pass/Fail	Notes
1.1.1: Non-Text Content (A) Provide text alternatives for non-text content (e.g. images)	Pass with exceptions	Most images and icons include text equivalents. Exceptions: Navigation: All images need an alt attribute, decorative images can be given alt="". Logos such as the Knovel Data Analytics image can be given alt="Knovel Data Analytics". Header: The Knovel logo image needs alt text (alt="Knovel"). Homepage: The featured mobile app images do not have alt text, which is necessary as they also serve as links. Browse: The featured mobile app images do not have alt text, which is necessary as they also serve as links. The individual book covers and "new" images do not have any alt text. Unit Converter: The input unit keyboards do not have any alt text.
1.3.3: Sensory Characteristics (A) Do not rely on sensory characteristics of components such as shape, size, visual location, orientation, or sound	Pass	Content does not rely on sensory characteristics.
1.4.1: Use of Color (A) Color is not used as the only visual means of conveying info	Pass with exceptions	Color is not used as the only means of conveying information for most content. Exceptions: The links in the footer are non-underlined text and have a color that is the same as the surrounding Copyright text. This link text requires a contrast of at least 3:1 between it and the adjacent text.
1.4.3: Color Contrast (Minimum) (AA) Text has enough contrast with the background (4.5:1 for small text and 3:1 for large text)	Pass with exceptions	Most text has enough contrast with its corresponding background. Exceptions: Navigation: The blue unit dropdown labels do not have enough contrast with the dark gray background. A currently active page's white text on orange background does not have enough contrast. Browse: The "All Subjects" orange text on light gray background does not have enough contrast.
1.4.4: Resize Text (AA) Text can be enlarged up to 200% without loss of functionality.	Pass with exceptions	Text can be enlarged to 200% and most content remains functional. Exceptions: Navigation: A couple of the panels become cut-off at 200% magnification and cannot be accessed with a mouse.
1.4.5: Images of Text (AA)	Pass	No images of text are used other than for Logos or essential presentation.

Text is used rather than images of text, except where the presentation of text is essential, such as logos		
2.3.1: Three Flashes or Below Threshold (A) No more than three flashes in a 1-second period, or the flashes are below the defined thresholds	N/A	No flashing content exists.
Keyboard		
WCAG 2 Checkpoint	Pass/Fail	Notes
1.3.2: Meaningful Sequence (A) The correct reading sequence can be programmatically determined	Pass with exceptions	The correct reading sequence is logical with the DOM order matching the visual order in most areas. Exceptions: Navigation: Each navigation pane should come immediately after its activating element in the DOM. Unit Converter: The use of table to order content in the Unit converter causes the reading order of its content to not make much sense. The unit input popups appear after the page content, instead of directly after the activating element.
2.1.1: Keyboard (A) All functionality is available from a keyboard, except for tasks such as drawing	Pass with exceptions	Most content is keyboard operable. Exceptions: Dropdowns on the site don't work in a predictable way with keyboard, as using the arrow keys to navigate through the dropdown options also scrolls the page. Screen readers especially have trouble opening and navigating the dropdowns. Navigation: The Unit conversion topic dropdown's options cannot be reached by keyboard. Homepage: Several links are missing href attributes, which causes the links to not receive keyboard focus. All Pages: The magnifying glass at the top of the screen for the search input cannot be reached by keyboard. Browse: The chevron icons which expand/collapse the topic areas cannot be reached by keyboard. Material Property Search: Opening the property accordions and adding a term to the search occupy the same "enter" key stroke. Therefore, users attempting to expand a term that also can be added to the search end up doing both.

		Unit Converter: The My Settings and Info links cannot be reached by keyboard. The options within the Gauge Conversions dropdown cannot be reached by keyboard. Users cannot change the significant digits input with the keyboard. The input keyboard icons cannot be reached by keyboard. All of the unit input popup's content cannot be reached by keyboard. The various Unit buttons (Select Input Unit, New Unit, etc.) cannot be reached by keyboard. The help text next to each text input cannot be read by those using keyboards only.
2.1.2: No Keyboard Trap (A) The user can use the keyboard to move through page elements and is not trapped on a particular element	Pass with exceptions	The basic search input causes tabbing to stop working entirely.
2.4.3: Focus Order (A) Users can tab through the elements of a page in a logical order	Pass with exceptions	Tab order is logical on the site for the most part. Exceptions: Focus should automatically be placed into dialog boxes. Focus should remain within the dialog box until it is closed. Focus should return to the activating element when the dialog box is closed. Navigation: Each navigation pane should come immediately after its activating element in the DOM. If focus moves past the end of an open pane, close the pane, otherwise users will tab into content behind the pane. Unit Converter: The unit input popups should be tabbed into directly after the activating elements.
2.4.7: Focus Visible (AA) The page element with the current keyboard focus has a visible focus indicator	Pass with exceptions	Most elements use a visible focus. Exceptions: Navigation Spine: The Home button needs a visible focus. The navigation tooltips should appear quicker upon keyboard focus. All pages: The "Home" breadcrumb link does not receive a visible focus. Unit Converter: The Knovel Unit Converter text does not receive a visible focus. The down arrow for opening the Gauge Conversion does not have a visible focus. All of the buttons in the actual Unit Converter do not receive a visible focus.
3.2.1: On Focus (A) When a UI component receives focus, this does not trigger unexpected actions.	Pass with exceptions	Most focusable elements do not cause unexpected actions when receiving focus. Exceptions: Material Property Search: When within the search region, any keyboard presses seem to reload the search application, which can cause serious confusion for screen readers, as well as slow the search process for keyboard users.
Headers and Structure		
WCAG 2.0	Pass/Fail	Notes

Checkpoint		
<p>1.3.1: Information and Relationships (A) Info, structure, and relationships can be programmatically determined</p>	Fail	<p>Headings and landmarks are not used on most pages. Unordered lists are used to group related content.</p> <p>Exceptions: Nearly all pages need headings, at least an h1, and preferably more to structure the rest of the content as well.</p> <p>Navigation: Tooltips should appear immediately, instead of waiting a second to appear. The navigation section should be wrapped in a <nav> element, or apply a role="navigation" to the containing element.</p> <p>Homepage: At least one h1 should be present, it should represent the main purpose of the page. Text such as My Knovel, What Can You Do With Knovel, and Featured should be headings (h2 in this case).</p> <p>Browse: The content underneath each section should be in a single unordered list if possible, instead of two separate ones.</p> <p>Material Property Search: Consider adding a role="region" to each large sections and labelling them so they can be understood and moved between easily with a screen reader.</p> <p>Unit Converter: The use of a table to structure content within the unit converter causes confusion when navigating its content. Tables within tables within tables are used.</p>
<p>2.4.1: Bypass Blocks (A) Users can bypass repeated blocks of content.</p>	Fail	<p>No "skip" link exists to skip the navigation. Headings and landmarks do not exist either, so screen reader users cannot skip past blocks of content either.</p>
<p>2.4.6: Headings and Labels (AA) Headings and labels are clear and consistent.</p>	Pass with exceptions	<p>Headings are not used on most of the site. The label text that does exist are sufficient.</p>
<p>3.1.1: Language of Page (A) The language of the page is specified</p>	Pass with exceptions	<p>The language is defined as lang="en" on most pages. A few pages are missing the attribute.</p> <p>Exceptions: The Chemical Materials search and Unit Converter pages do not have a defined language.</p>
<p>3.1.2: Language of Parts (AA) Specify the language of text passages that are in a different language than the default language of the page.</p>	Pass	<p>None of the site-wide UI or functionality uses a different language than the default.</p>
<p>4.1.1: Parsing (A) Use valid, error-free HTML</p>	Pass	<p>HTML and CSS passes concerning these 4 specific criteria: (i) elements have complete start and end tags, (ii) elements are nested according to their specifications (iii) elements do not contain duplicate attributes</p>

		(iv) any IDs are unique, except where the specifications allow these features.
Labeling		
WCAG 2.0 Checkpoint	Pass/Fail	Notes
2.4.2: Page Titled (A) The page has a title describing its topic or purpose	Pass	The title changes accordingly for each page and is typically descriptive.
2.4.4: Link Purpose (In Context) (A) The purpose of each link can be determined from the link text or surrounding context.	Pass with exceptions	<p>Most links used have an identifiable purpose from the link text or surrounding context.</p> <p>Exceptions: Navigation: The Home link does not have any link text, due to display: none being used on the hidden text (text should be clipped or moved off-screen). The 'X' icon for closing the tab panes. The '>' button for unit conversion does not have link text.</p> <p>Homepage: Several links have hidden link text that uses display: none, which causes screen readers to ignore the text. Off-screen or clipped text should be applied instead. The magnifying glass search button needs button text. The featured app images are used as links, but do not have any alt text.</p> <p>All pages: The magnifying glass at the top of the page for search does not have any button text.</p> <p>Browse: The chevron icons that expand/collapse the topic areas do not have any button text.</p> <p>Material Property Search: Some indication of what activating the actual terms in the property search will do is necessary.</p> <p>Unit Converter: The link text, "Knovel Unit Converter", does not make any sense in regards to the link's destination, a registration page. The downward arrow to open Gauge Conversions does not have any button text. The Flip Units and Clear All buttons in the unit converter need button text. The buttons within the unit input popups have hidden text that is hidden using display: none, where the text could be hidden in a different way so the text could be read by screen readers.</p>
3.2.4: Consistent Identification (AA) UI components used across the web site are identified consistently on every page.	Pass	Most UI components are consistent across the site.
3.3.1: Error Identification (A) Input errors are clearly marked and described to the user.	Pass with exceptions	<p>Errors are given and described well, but need work in order to announce them to screen readers.</p> <p>Exceptions: Material Property Search: The errors are identified and described visually,</p>

		but not communicated programmatically through the label or input.
<p>3.3.2: Labels and Instructions (A) Items requiring user input are clearly labeled or have clear instructions.</p>	Pass with exceptions	<p>Most input areas have clear labels which are programmatically assigned.</p> <p>Exceptions: Navigation: The unit inputs for Unit Conversion do not have any labels.</p> <p>Homepage: The search input needs a true label, as a constantly changing placeholder will not be sufficient. The search input should let the user know there are suggested search options, and how to peruse them.</p> <p>All Pages: The search input at the top needs a true label, a placeholder attribute alone is not sufficient.</p> <p>Browse: Topic Quickfinder input needs a true label, a placeholder attribute alone is not sufficient.</p> <p>Material Property Search: The Search input needs a proper label, as a rotating placeholder or title is not sufficient. The dropdown for choosing the operator for each property name does not have a proper label. The actual value for a property input needs a proper label, as a title is not sufficient. Same for the Filter by Property Name input.</p> <p>Unit Converter: All inputs in the unit converter do not have labels.</p>
<p>3.3.3: Error Suggestion (AA) When the user makes an input error, give suggestions for valid input.</p>	Pass	The error text given is sufficient for error suggestions in most cases.
<p>4.1.2: Name, Role, Value (A) For all UI components, the name, value, and role can be programmatically determined.</p>	Pass with exceptions	<p>Most UI components communicate their state programmatically.</p> <p>Exceptions: Header: Profile dropdown needs aria-expanded attribute.</p> <p>Navigation: The dropdowns in the navigation panes need aria-expanded attributes. The panes themselves have aria-expanded attributes, but they don't change value.</p> <p>Homepage: Consider following the aria tablist ruleset for tabs. http://www.w3.org/TR/wai-aria-practices/examples/tabs/tabs.html. At least apply role="tab" to the elements, as well as aria-expanded="true/false".</p> <p>Browse: Consider following the aria tablist ruleset for tabs. http://www.w3.org/TR/wai-aria-practices/examples/tabs/tabs.html. At least apply role="tab" to the elements, as well as aria-expanded="true/false". Apply aria-pressed="true" to the active button (All Content, My Subscription) and aria-pressed="false" to the inactive button. The chevron icons that expand/collapse the topic areas should be given aria-expanded attributes.</p> <p>Material Property Search: The expandable content within the property</p>

		<p>name section needs to be given aria-expanded attributes.</p> <p>Unit Converter: The currently selected button for notation should be given aria-pressed="true", and the others given aria-pressed="false". The Select Input/Output Unit and New Unit buttons need to be given aria-expanded attributes.</p>
Multimedia		
WCAG 2.0 Checkpoint	Pass/Fail	Notes
1.2.1: Audio-only or Video-only (Prerecorded) (A) Provide alternatives for pre-recorded audio-only or video-only content.	N/A	No pre-recorded audio-only or video-only content was reviewed.
1.2.2: Captions (Prerecorded) (A) Provide captions for pre-recorded audio	N/A	There is no pre-recorded audio on the site.
1.2.3: Audio Description or Media Alternative (Prerecorded) (A) Provide alternatives for pre-recorded synchronized audio/video	N/A	There is no pre-recorded synchronized audio/video on the site.
1.2.4: Captions (Live) (AA) Provide captions for live audio in synchronized audio/video.	N/A	There is no live audio in synchronized audio/video.
1.2.5: Audio Description (Prerecorded) (AA) Provide an audio description of pre-recorded video.	N/A	There is no pre-recorded video on the site.
1.4.2: Audio Control (A) Audio can be paused and stopped, or the audio volume can be changed.	N/A	There is no audio content on the site.
2.2.2: Pause, Stop, Hide (A) Users can stop, pause, or hide moving, blinking, scrolling, or auto-updating	Fail	There needs to be a way to stop the constantly changing placeholder text in the search field on the Homepage, as well as the changing placeholder text in the Material Property Search field.

information.		
Usability		
WCAG 2.0 Checkpoint	Pass/Fail	Notes
2.2.1: Timing Adjustable (A) Users are warned of time limits shorter than 20 hours and time limits can be turned off or extended	N/A	There is no session timeout.
2.4.5: Multiple Ways (AA) More than one way is available to navigate to other web pages.	Pass	Users can reach all pages in the system using the global navigation. Content pages can be reached through the global nav or homepage.
3.2.2: On Input (A) Changing the setting of a checkbox, radio button, or other UI component does not trigger unexpected changes in context.	Pass	User inputs do not cause unexpected actions for most content.
3.2.3: Consistent Navigation (AA) Navigation menus are in the same location and order on every web page.	Pass	Navigation menus are consistently in the same place and in same order.
3.3.4: Error Prevention (Legal, Financial, Data) (AA) For web pages with legal or financial commitments, input can be reviewed and corrected before final submission, and submissions can be reverted.	N/A	There are no submissions which require legal or financial commitments.