Summary
WBC Research Themes
Review & Update

Theme C

Theme C: Adhesive Technology

Research focused on adhesives and adhesion is a mainstay of the WBC research agenda. This research theme focuses on understanding the interaction between wood and adhesives as well as fundamental knowledge that can support member efforts to develop new and improved resins or products.

Subtheme C.1. *Wood-Adhesive Interaction*

1. Mechanisms of adhesive transport across and into wood
2. Adhesive distribution and penetration
3. In the presence of surface modification
4. Wood/adhesive chemistry
5. Thermoset and thermoplastic adhesive systems

Subtheme C.2. Novel Adhesive Technology

1. In response to potential future regulations or industry trends
2. Adhesion in aggressive environments (high temperature, humidity, salt, etc.)
3. Investigating the effects of fillers on adhesive performance
4. Fundamentals of bonding chemically or physically modified wood
5. Novel or improved adhesive application methods
6. Expanded functionality of adhesive systems

Subtheme C.3. Performance

1. Methods for evaluating the adhesive bond
2. Assessment techniques for long-term durability
3. Novel analyses of bondline response to extreme treatments

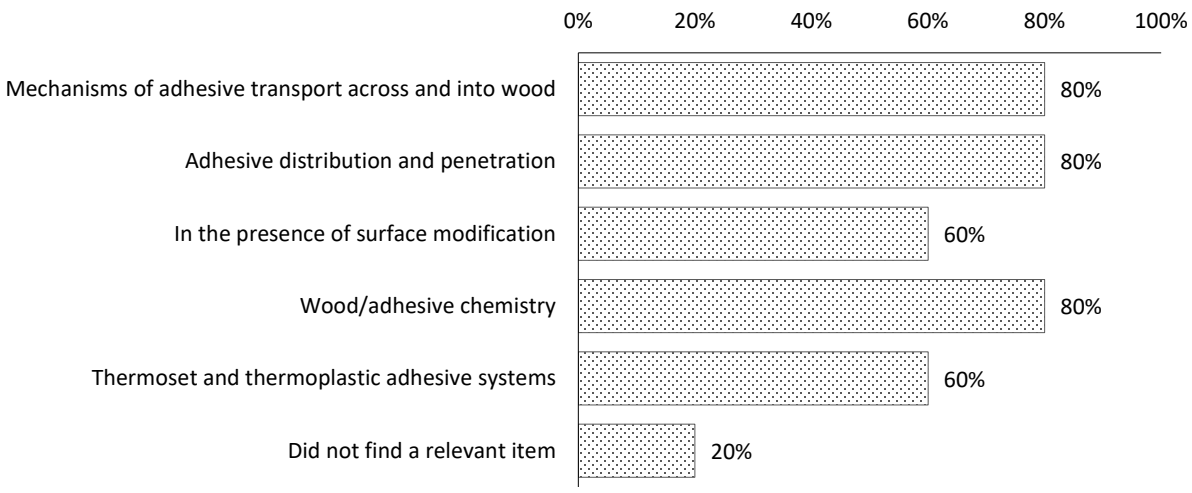
Theme C: Adhesive Technology

Response Rate 46%

Question 1. **Subtheme C.1. *Wood Adhesive Interaction*** contains several items, please choose the ones that are important/relevant for your field of work (check all that apply):

Items	Count	Percentage
Mechanisms of adhesive transport across and into wood	4	80%
Adhesive distribution and penetration	4	80%
In the presence of surface modification	3	60%
Wood/adhesive chemistry	4	80%
Thermoset and thermoplastic adhesive systems	3	60%
Did not find a relevant item	1	20%

Subtheme C.1. *Wood Adhesive Interaction* Important/Relevant Items



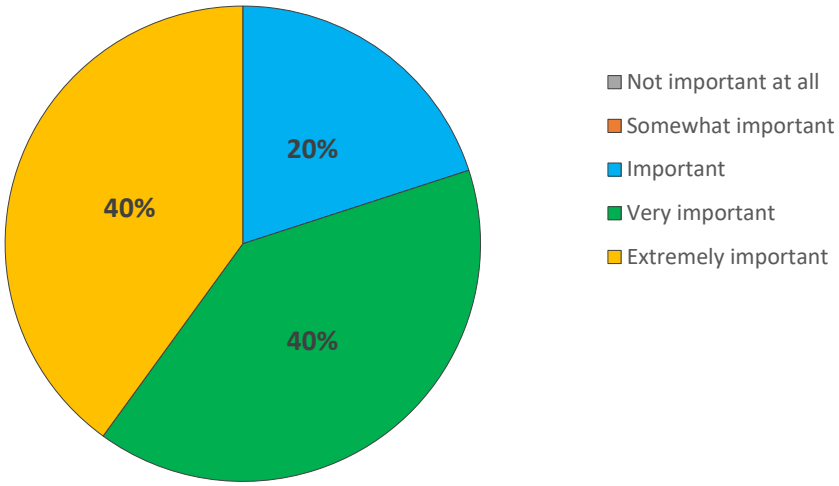
Question 2. Please recommend a new item(s) for **Subtheme C.1. *Wood Adhesive Interaction***. Please add a short definition for the item(s).

- *Bonding of wood to non-wood substrates*

Question 3. Please rate the importance of **Subtheme C.1. *Wood Adhesive Interaction*** for your field of work:

Level of Importance	Count	Percentage
Not important at all	0	0%
Somewhat important	0	0%
Important	1	20%
Very important	2	40%
Extremely important	2	40%

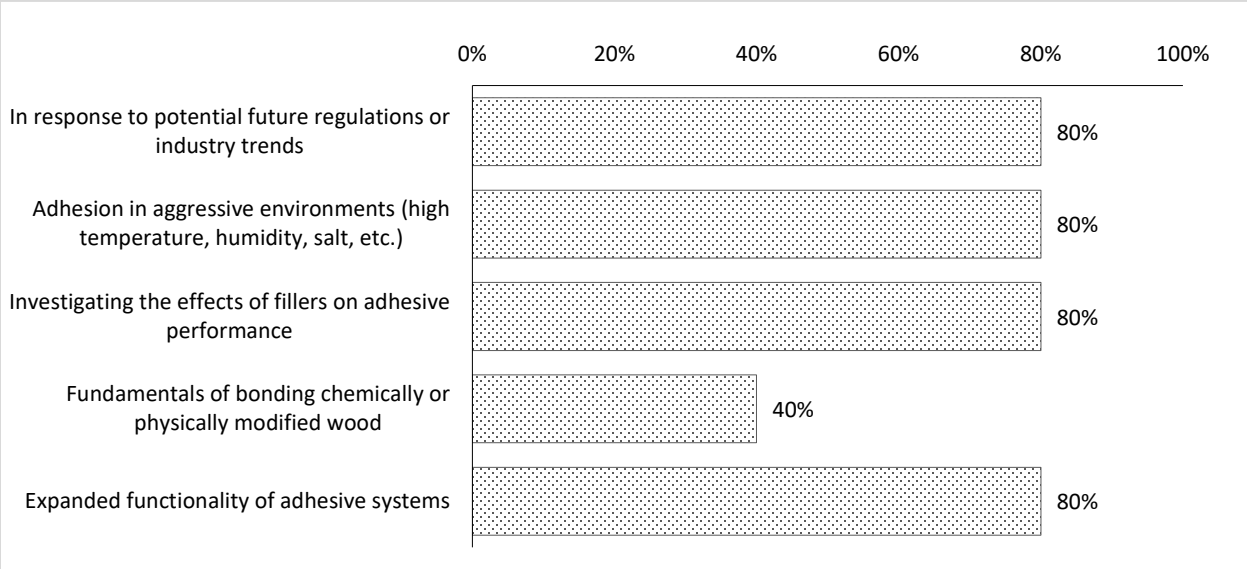
Level of Importance **Subtheme C.1. *Wood Adhesive Interaction***



Question 4. **Subtheme C.2. *Novel Adhesive Technology*** contains several items; please choose the ones that are important/relevant for your field of work (check all that apply):

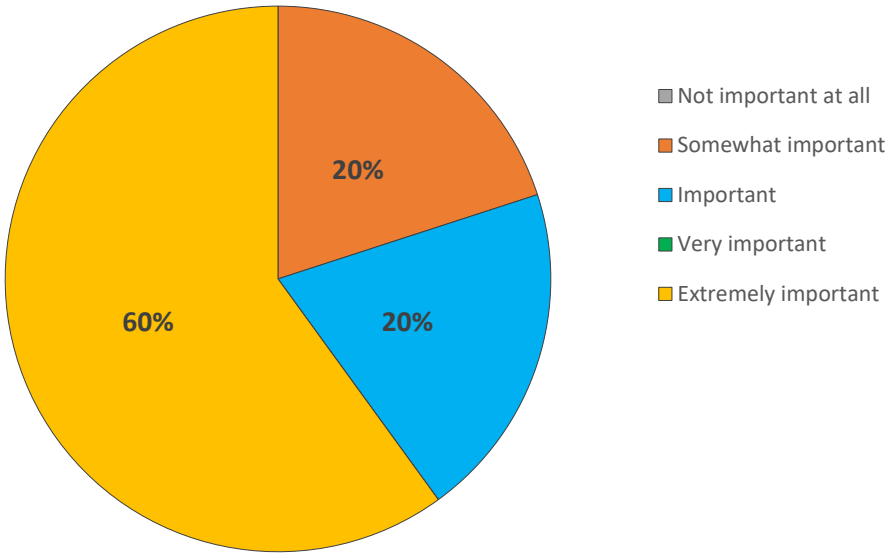
Items	Count	Percentage
In response to potential future regulations or industry trends	80%	4
Adhesion in aggressive environments (high temperature, humidity, salt, etc.)	80%	4
Investigating the effects of fillers on adhesive performance	80%	4
Fundamentals of bonding chemically or physically modified wood	40%	2
Expanded functionality of adhesive systems	80%	4

Subtheme C.2. *Novel Adhesive Technology* Important/Relevant Items



Question 5. Please rate the importance of **Subtheme C.2. *Novel Adhesive Technology*** for your field of work:

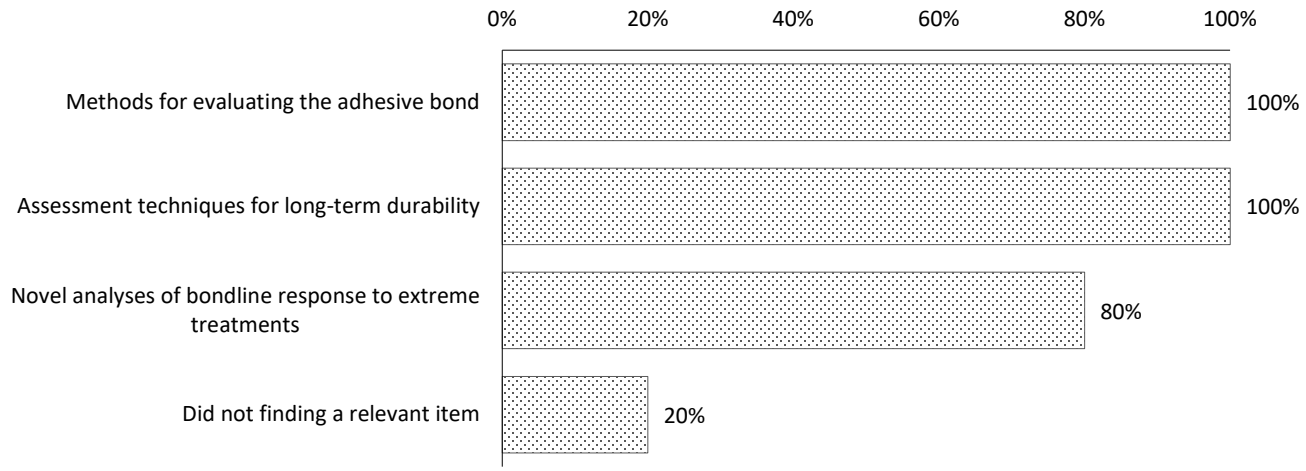
Level of Importance	Count	Percentage
Not important at all	0	0
Somewhat important	1	20%
Important	1	20%
Very important	0	0
Extremely important	3	60%



Question 6. **Subtheme C.3. *Performance*** contains several items; please choose the ones that are important/relevant for your field of work (check all that apply):

Items	Count	Percentage
Methods for evaluating the adhesive bond	100%	5
Assessment techniques for long-term durability	100%	5
Novel analyses of bondline response to extreme treatments	80%	4
Did not finding a relevant item	20%	1

Subtheme C.3. *Performance* Important/Relevant Items

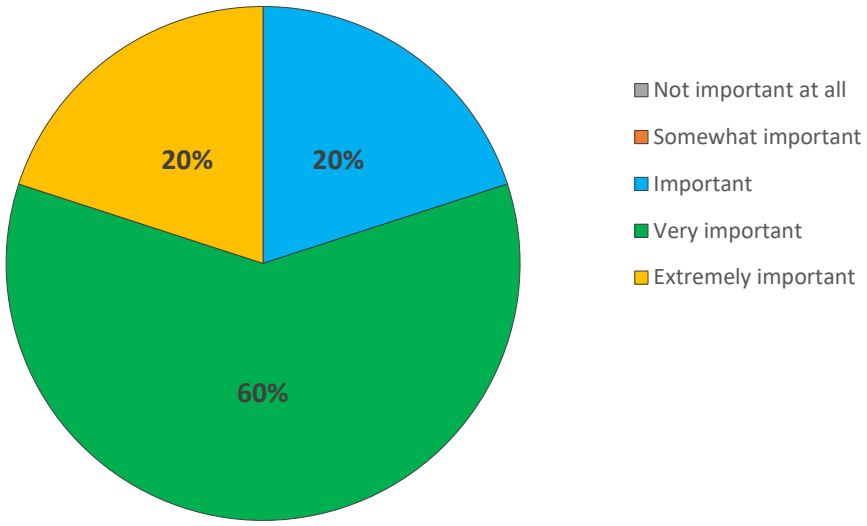


Question 7. Please recommend a new item(s) for **Subtheme C.3. *Performance***. Please add a short definition for the item(s).

- *Under Methods for evaluating bonds and durability, a focus on developing and evaluating adhesive certification methods would be preferred.*

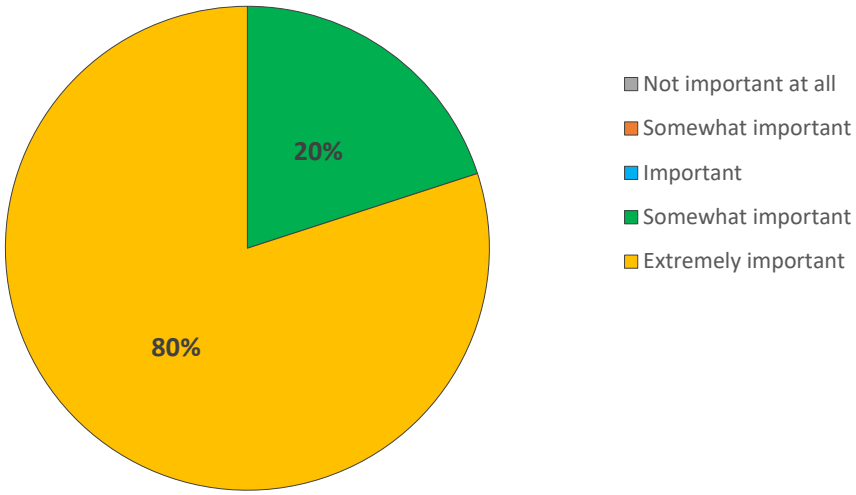
Question 8. Please rate the importance of **Subtheme C.3. *Performance***. for your field of work:

Level of Importance	Count	Percentage
Not important at all	0	0%
Somewhat important	0	0%
Important	1	20%
Very important	3	60%
Extremely important	1	20%



Question 9. **Overall,** please rate the importance of theme **Theme C: Adhesive Technology** for your field of work:

Level of Importance	Count	Percentage
Not important at all	0	0%
Somewhat important	0	0%
Important	0	0%
Very important	1	20%
Extremely important	4	80%



Suggestions & Comments

Suggestions

Please provide suggestions to improve and update research theme **Theme C: Adhesive Technology**, subthemes, and items. In **purple** items modified or eliminated, in **blue** items added:

C. Adhesive Technology

Research Theme C focuses on the understanding of the interaction between wood and adhesives. Theme C has the greatest interaction with the other themes and is the WBC founding theme. The results of Theme C provide fundamental knowledge that supports member efforts to develop new and improved resin products. ~~focused on adhesives and adhesion is a mainstay of the WBC research agenda. This research theme focuses on understanding the interaction between wood and adhesives as well as fundamental knowledge that can support member efforts to develop new and improved resins or products.~~

Current	Suggested
Theme C: Adhesive Technology	**Theme C: Adhesive Technology**
C.1. Wood-Adhesive Interaction ~~1) Mechanisms of adhesive transport across and into wood~~ 2) Adhesive distribution and penetration ~~3) In the presence of surface modification~~ ~~4) Wood/adhesive chemistry~~ 5) ~~Thermoset and thermoplastic adhesive systems~~	**C.1. Wood-Adhesive Interaction** 1) Studying the mechanisms of adhesive transport across and into wood. 2) Evaluating adhesive distribution and penetration. 3) Determining the effects surface modification on adhesive distribution and penetration. 4) Investigating wood and adhesive chemical interactions. 5) Bonding of wood to non-wood substrates 6) Improving reliability of field adhesion between metal and wood.

C.2. Novel Adhesive Technology 1) ~~In response to potential~~ future regulations or industry trends ~~2)~~ Adhesion in aggressive environments ~~(high temperature, humidity, salt, etc.)~~ 3) Investigating the effects of fillers on adhesive performance 4) Fundamentals of bonding chemically ~~or~~ physically modified wood 5) Novel ~~or~~ improved adhesive application methods 6) Expanded functionality of adhesive systems	**C.2. Novel Adhesive Technology** 1) Developing resins in anticipation of future regulations and industry trends. 2) Studying adhesion in aggressive environments. 3) Investigating the effects of fillers on adhesive performance. 4) Determining fundamentals of bonding chemically and/or physically modified wood. 5) Evaluating novel and/or improved adhesive application methods. 6) Expanding functionality of adhesive systems.
C.3. Performance ~~1) Methods for evaluating the adhesive bond~~ ~~2) Assessment techniques for long-term durability~~ 3) ~~Novel analyses of bondline response to extreme treatments~~	**C.3. Performance** 1) Develop and improve methods to: a. Evaluate the adhesive bond. b. Increase the toolbox for assessment techniques for long-term durability. c. Determine novel analyses for bondline responses to extreme treatments.

Comments

Please comment on how to improve and update research **Theme C: Adhesive Technology**, subthemes, and items.