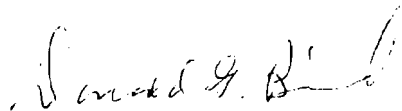


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Virginia Polytechnic Institute and State University
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Phone: 540-231-5998
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Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 1-1

Institution: Virginia Tech

Prepared by: Myoungbae Lee

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Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 2-1-3

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Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 2.1-5

Institution: Virginia Tech

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Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-Membranes, Figure 2.1-6

Institution: Virginia Tech

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Institution: Virginia Tech

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Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 2v1-8

Institution: Virginia Tech

Prepared by: Myoungbae Lee

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Solution-casting of Disulfonated Poly
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polymer Films for Proton Exchange
Membranes, Figure 2-1-9

Institution: Virginia Tech

Prepared by: Myoungbae Lee

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CHECKLIST FOR FAIR USE

Please complete and retain a copy of this form in connection with each possible "fair use" of a copyrighted work for your project

Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-Membranes, Figure 2.i-IV

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input type="checkbox"/> Teaching (including multiple copies for classroom use) | <input type="checkbox"/> Commercial activity |
| <input checked="" type="checkbox"/> Research | <input type="checkbox"/> Profiting from the use |
| <input type="checkbox"/> Scholarship | <input type="checkbox"/> Entertainment |
| <input type="checkbox"/> Nonprofit Educational Institution | <input type="checkbox"/> Bad-faith behavior |
| <input type="checkbox"/> Criticism | <input type="checkbox"/> Denying credit to original author |
| <input type="checkbox"/> Comment | |
| <input type="checkbox"/> News reporting | |
| <input type="checkbox"/> Transformative or Productive use (changes the work for new utility) | |
| <input type="checkbox"/> Restricted access (to students or other appropriate group) | |
| <input type="checkbox"/> Parody | |

NATURE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input checked="" type="checkbox"/> Published work | <input type="checkbox"/> Unpublished work |
| <input type="checkbox"/> Factual or nonfiction based | <input type="checkbox"/> Highly creative work (art, music, novels, films, plays) |
| <input type="checkbox"/> Important to favored educational objectives | <input type="checkbox"/> Fiction |

AMOUNT

Favoring Fair Use

Opposing Fair Use

- | | |
|---|---|
| <input checked="" type="checkbox"/> Small quantity | <input type="checkbox"/> Large portion or whole work used |
| <input checked="" type="checkbox"/> Portion used is not central or significant to entire work | <input type="checkbox"/> Portion used is central to work or "heart of the work" |
| <input type="checkbox"/> Amount is appropriate for favored educational purpose | |

EFFECT

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input type="checkbox"/> User owns lawfully acquired or purchased copy of original work | <input type="checkbox"/> Could replace sale of copyrighted work |
| <input checked="" type="checkbox"/> One or few copies made | <input type="checkbox"/> Significantly impairs market or potential market for copyrighted work or derivative |
| <input checked="" type="checkbox"/> No significant effect on the market or potential market for copyrighted work | <input type="checkbox"/> Reasonably available licensing mechanism for use of the copyrighted work |
| <input type="checkbox"/> No similar product marketed by the copyright holder | <input type="checkbox"/> Affordable permission available for using work |
| <input type="checkbox"/> Lack of licensing mechanism | <input type="checkbox"/> Numerous copies made |
| | <input type="checkbox"/> You made it accessible on Web or in other public forum |
| | <input type="checkbox"/> Repeated or long-term use |

CHECKLIST FOR FAIR USE

Please complete and retain a copy of this form in connection with each possible "fair use" of a copyrighted work for your project

Name: Myoungbae Lee

Date: 05/05/09

Solution-casting of Disulfonated Poly
(arylene ether sulfone) Multiblock Co-
Project: polymer Films for Proton Exchange
Membranes, Figure 2.2-1

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input type="checkbox"/> Teaching (including multiple copies for classroom use) | <input type="checkbox"/> Commercial activity |
| <input checked="" type="checkbox"/> Research | <input type="checkbox"/> Profiting from the use |
| <input type="checkbox"/> Scholarship | <input type="checkbox"/> Entertainment |
| <input type="checkbox"/> Nonprofit Educational Institution | <input type="checkbox"/> Bad-faith behavior |
| <input type="checkbox"/> Criticism | <input type="checkbox"/> Denying credit to original author |
| <input type="checkbox"/> Comment | |
| <input type="checkbox"/> News reporting | |
| <input type="checkbox"/> Transformative or Productive use (changes the work for new utility) | |
| <input type="checkbox"/> Restricted access (to students or other appropriate group) | |
| <input type="checkbox"/> Parody | |

NATURE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input checked="" type="checkbox"/> Published work | <input type="checkbox"/> Unpublished work |
| <input type="checkbox"/> Factual or nonfiction based | <input type="checkbox"/> Highly creative work (art, music, novels, films, plays) |
| <input type="checkbox"/> Important to favored educational objectives | <input type="checkbox"/> Fiction |

AMOUNT

Favoring Fair Use

Opposing Fair Use

- | | |
|---|---|
| <input checked="" type="checkbox"/> Small quantity | <input type="checkbox"/> Large portion or whole work used |
| <input checked="" type="checkbox"/> Portion used is not central or significant to entire work | <input type="checkbox"/> Portion used is central to work or "heart of the work" |
| <input type="checkbox"/> Amount is appropriate for favored educational purpose | |

EFFECT

Favoring Fair Use

Opposing Fair Use

- | | |
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| <input type="checkbox"/> User owns lawfully acquired or purchased copy of original work | <input type="checkbox"/> Could replace sale of copyrighted work |
| <input checked="" type="checkbox"/> One or few copies made | <input type="checkbox"/> Significantly impairs market or potential market for copyrighted work or derivative |
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| <input type="checkbox"/> Lack of licensing mechanism | <input type="checkbox"/> Numerous copies made |
| | <input type="checkbox"/> You made it accessible on Web or in other public forum |
| | <input type="checkbox"/> Repeated or long-term use |

CHECKLIST FOR FAIR USE

Please complete and retain a copy of this form in connection with each possible "fair use" of a copyrighted work for your project

Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 2.2-2

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input type="checkbox"/> Teaching (including multiple copies for classroom use) | <input type="checkbox"/> Commercial activity |
| <input checked="" type="checkbox"/> Research | <input type="checkbox"/> Profiting from the use |
| <input type="checkbox"/> Scholarship | <input type="checkbox"/> Entertainment |
| <input type="checkbox"/> Nonprofit Educational Institution | <input type="checkbox"/> Bad-faith behavior |
| <input type="checkbox"/> Criticism | <input type="checkbox"/> Denying credit to original author |
| <input type="checkbox"/> Comment | |
| <input type="checkbox"/> News reporting | |
| <input type="checkbox"/> Transformative or Productive use (changes the work for new utility) | |
| <input type="checkbox"/> Restricted access (to students or other appropriate group) | |
| <input type="checkbox"/> Parody | |

NATURE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input checked="" type="checkbox"/> Published work | <input type="checkbox"/> Unpublished work |
| <input type="checkbox"/> Factual or nonfiction based | <input type="checkbox"/> Highly creative work (art, music, novels, films, plays) |
| <input type="checkbox"/> Important to favored educational objectives | <input type="checkbox"/> Fiction |

AMOUNT

Favoring Fair Use

Opposing Fair Use

- | | |
|---|---|
| <input checked="" type="checkbox"/> Small quantity | <input type="checkbox"/> Large portion or whole work used |
| <input checked="" type="checkbox"/> Portion used is not central or significant to entire work | <input type="checkbox"/> Portion used is central to work or "heart of the work" |
| <input type="checkbox"/> Amount is appropriate for favored educational purpose | |

EFFECT

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input type="checkbox"/> User owns lawfully acquired or purchased copy of original work | <input type="checkbox"/> Could replace sale of copyrighted work |
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| <input checked="" type="checkbox"/> No significant effect on the market or potential market for copyrighted work | <input type="checkbox"/> Reasonably available licensing mechanism for use of the copyrighted work |
| <input type="checkbox"/> No similar product marketed by the copyright holder | <input type="checkbox"/> Affordable permission available for using work |
| <input type="checkbox"/> Lack of licensing mechanism | <input type="checkbox"/> Numerous copies made |
| | <input type="checkbox"/> You made it accessible on Web or in other public forum |
| | <input type="checkbox"/> Repeated or long-term use |

CHECKLIST FOR FAIR USE

Please complete and retain a copy of this form in connection with each possible "fair use" of a copyrighted work for your project

Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 2, 2-3

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

Favoring Fair Use

- Teaching (including multiple copies for classroom use)
- Research
- Scholarship
- Nonprofit Educational Institution
- Criticism
- Comment
- News reporting
- Transformative or Productive USE (changes the work for new utility)
- Restricted access (to students or other appropriate group)
- Parody

Opposing Fair Use

- Commercial activity
- Profiting from the use
- Entertainment
- Bad-faith behavior
- Denying credit to original author

NATURE

Favoring Fair Use

- Published work
- Factual or nonfiction based
- Important to favored educational objectives

Opposing Fair Use

- Unpublished work
- Highly creative work (art, music, novels, films, plays)
- Fiction

AMOUNT

Favoring Fair Use

- Small quantity
- Portion used is not central or significant to entire work
- Amount is appropriate for favored educational purpose

Opposing Fair Use

- Large portion or whole work used
- Portion used is central to work or "heart of the work"

EFFECT

Favoring Fair Use

- User owns lawfully acquired or purchased copy of original work
- One or few copies made
- No significant effect on the market or potential market for copyrighted work
- No similar product marketed by the copyright holder
- Lack of licensing mechanism

Opposing Fair Use

- Could replace sale of copyrighted work
- Significantly impairs market or potential market for copyrighted work or derivative
- Reasonably available licensing mechanism for use of the copyrighted work
- Affordable permission available for using work
- Numerous copies made
- You made it accessible on Web or in other public forum
- Repeated or long-term use

CHECKLIST FOR FAIR USE

Please complete and retain a copy of this form in connection with each possible "fair use" of a copyrighted work for your project

Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 2-3-1

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

Favoring Fair Use

Opposing Fair Use

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|--|--|
| <input checked="" type="checkbox"/> Teaching (including multiple copies for classroom use) | <input type="checkbox"/> Commercial activity |
| <input checked="" type="checkbox"/> Research | <input type="checkbox"/> Profiting from the use |
| <input type="checkbox"/> Scholarship | <input type="checkbox"/> Entertainment |
| <input type="checkbox"/> Nonprofit Educational Institution | <input type="checkbox"/> Bad-faith behavior |
| <input type="checkbox"/> Criticism | <input type="checkbox"/> Denying credit to original author |
| <input type="checkbox"/> Comment | |
| <input type="checkbox"/> News reporting | |
| <input type="checkbox"/> Transformative or Productive use (changes the work for new utility) | |
| <input type="checkbox"/> Restricted access (to students or other appropriate group) | |
| <input type="checkbox"/> Parody | |

NATURE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input checked="" type="checkbox"/> Published work | <input type="checkbox"/> Unpublished work |
| <input type="checkbox"/> Factual or nonfiction based | <input type="checkbox"/> Highly creative work (art, music, novels, films, plays) |
| <input type="checkbox"/> Important to favored educational objectives | <input type="checkbox"/> Fiction |

AMOUNT

Favoring Fair Use

Opposing Fair Use

- | | |
|---|---|
| <input checked="" type="checkbox"/> Small quantity | <input type="checkbox"/> Large portion or whole work used |
| <input checked="" type="checkbox"/> Portion used is not central or significant to entire work | <input type="checkbox"/> Portion used is central to work or "heart of the work" |
| <input type="checkbox"/> Amount is appropriate for favored educational purpose | |

EFFECT

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input type="checkbox"/> User owns lawfully acquired or purchased copy of original work | <input type="checkbox"/> Could replace sale of copyrighted work |
| <input checked="" type="checkbox"/> One or few copies made | <input type="checkbox"/> Significantly impairs market or potential market for copyrighted work or derivative |
| <input checked="" type="checkbox"/> No significant effect on the market or potential market for copyrighted work | <input type="checkbox"/> Reasonably available licensing mechanism for use of the copyrighted work |
| <input type="checkbox"/> No similar product marketed by the copyright holder | <input type="checkbox"/> Affordable permission available for using work |
| <input type="checkbox"/> Lack of licensing mechanism | <input type="checkbox"/> Numerous copies made |
| | <input type="checkbox"/> You made it accessible on Web or in other public forum |
| | <input type="checkbox"/> Repeated or long-term use |

CHECKLIST FOR FAIR USE

Please complete and retain a copy of this form in connection with each possible "fair use" of a copyrighted work for your project

Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 1, 3-2

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

Favoring Fair Use

- Teaching (including multiple copies for classroom use)
- Research
- Scholarship
- Nonprofit Educational Institution
- Criticism
- Comment
- News reporting
- Transformative or Productive use (changes the work for new utility)
- Restricted access (to students or other appropriate group)
- Parody

Opposing Fair Use

- Commercial activity
- Profiting from the use
- Entertainment
- Bad-faith behavior
- Denying credit to original author

NATURE

Favoring Fair Use

- Published work
- Factual or nonfiction based
- Important to favored educational objectives

Opposing Fair Use

- Unpublished work
- Highly creative work (art, music, novels, films, plays)
- Fiction

AMOUNT

Favoring Fair Use

- Small quantity
- Portion used is not central or significant to entire work
- Amount is appropriate for favored educational purpose

Opposing Fair Use

- Large portion or whole work used
- Portion used is central to work or "heart of the work"

EFFECT

Favoring Fair Use

- User owns lawfully acquired or purchased copy of original work
- One or few copies made
- No significant effect on the market or potential market for copyrighted work
- No similar product marketed by the copyright holder
- Lack of licensing mechanism

Opposing Fair Use

- Could replace sale of copyrighted work
- Significantly impairs market or potential market for copyrighted work or derivative
- Reasonably available licensing mechanism for use of the copyrighted work
- Affordable permission available for using work
- Numerous copies made
- You made it accessible on Web or in other public forum
- Repeated or long-term use

CHECKLIST FOR FAIR USE

Please complete and retain a copy of this form in connection with each possible "fair use" of a copyrighted work for your project

Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 2.3.3

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

Favoring Fair Use

Opposing Fair Use

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| <input checked="" type="checkbox"/> Teaching (including multiple copies for classroom use) | <input type="checkbox"/> Commercial activity |
| <input checked="" type="checkbox"/> Research | <input type="checkbox"/> Profiting from the use |
| <input type="checkbox"/> Scholarship | <input type="checkbox"/> Entertainment |
| <input type="checkbox"/> Nonprofit Educational Institution | <input type="checkbox"/> Bad-faith behavior |
| <input type="checkbox"/> Criticism | <input type="checkbox"/> Denying credit to original author |
| <input type="checkbox"/> Comment | |
| <input type="checkbox"/> News reporting | |
| <input type="checkbox"/> Transformative or Productive USE (changes the work for new utility) | |
| <input type="checkbox"/> Restricted access (to students or other appropriate group) | |
| <input type="checkbox"/> Parody | |

NATURE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input checked="" type="checkbox"/> Published work | <input type="checkbox"/> Unpublished work |
| <input type="checkbox"/> Factual or nonfiction based | <input type="checkbox"/> Highly creative work (art, music, novels, films, plays) |
| <input type="checkbox"/> Important to favored educational objectives | <input type="checkbox"/> Fiction |

AMOUNT

Favoring Fair Use

Opposing Fair Use

- | | |
|---|---|
| <input checked="" type="checkbox"/> Small quantity | <input type="checkbox"/> Large portion or whole work used |
| <input checked="" type="checkbox"/> Portion used is not central or significant to entire work | <input type="checkbox"/> Portion used is central to work or "heart of the work" |
| <input type="checkbox"/> Amount is appropriate for favored educational purpose | |

EFFECT

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input type="checkbox"/> User owns lawfully acquired or purchased copy of original work | <input type="checkbox"/> Could replace sale of copyrighted work |
| <input checked="" type="checkbox"/> One or few copies made | <input type="checkbox"/> Significantly impairs market or potential market for copyrighted work or derivative |
| <input checked="" type="checkbox"/> No significant effect on the market or potential market for copyrighted work | <input type="checkbox"/> Reasonably available licensing mechanism for use of the copyrighted work |
| <input type="checkbox"/> No similar product marketed by the copyright holder | <input type="checkbox"/> Affordable permission available for using work |
| <input type="checkbox"/> Lack of licensing mechanism | <input type="checkbox"/> Numerous copies made |
| | <input type="checkbox"/> You made it accessible on Web or in other public forum |
| | <input type="checkbox"/> Repeated or long-term use |

CHECKLIST FOR FAIR USE

Please complete and retain a copy of this form in connection with each possible "fair use" of a copyrighted work for your project

Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 2, 3-4

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input type="checkbox"/> Teaching (including multiple copies for classroom use)
<input checked="" type="checkbox"/> Research
<input type="checkbox"/> Scholarship
<input type="checkbox"/> Nonprofit Educational Institution
<input type="checkbox"/> Criticism
<input type="checkbox"/> Comment
<input type="checkbox"/> News reporting
<input type="checkbox"/> Transformative or Productive use (changes the work for new utility)
<input type="checkbox"/> Restricted access (to students or other appropriate group)
<input type="checkbox"/> Parody | <input type="checkbox"/> Commercial activity
<input type="checkbox"/> Profiting from the use
<input type="checkbox"/> Entertainment
<input type="checkbox"/> Bad-faith behavior
<input type="checkbox"/> Denying credit to original author |
|--|--|

NATURE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|---|
| <input checked="" type="checkbox"/> Published work
<input type="checkbox"/> Factual or nonfiction based
<input type="checkbox"/> Important to favored educational objectives | <input type="checkbox"/> Unpublished work
<input type="checkbox"/> Highly creative work (art, music, novels, films, plays)
<input type="checkbox"/> Fiction |
|--|---|

AMOUNT

Favoring Fair Use

Opposing Fair Use

- | | |
|---|--|
| <input checked="" type="checkbox"/> Small quantity
<input checked="" type="checkbox"/> Portion used is not central or significant to entire work
<input type="checkbox"/> Amount is appropriate for favored educational purpose | <input type="checkbox"/> Large portion or whole work used
<input type="checkbox"/> Portion used is central to work or "heart of the work" |
|---|--|

EFFECT

Favoring Fair Use

Opposing Fair Use

- | | |
|---|---|
| <input type="checkbox"/> User owns lawfully acquired or purchased copy of original work
<input checked="" type="checkbox"/> One or few copies made
<input checked="" type="checkbox"/> No significant effect on the market or potential market for copyrighted work
<input type="checkbox"/> No similar product marketed by the copyright holder
<input type="checkbox"/> Lack of licensing mechanism | <input type="checkbox"/> Could replace sale of copyrighted work
<input type="checkbox"/> Significantly impairs market or potential market for copyrighted work or derivative
<input type="checkbox"/> Reasonably available licensing mechanism for use of the copyrighted work
<input type="checkbox"/> Affordable permission available for using work
<input type="checkbox"/> Numerous copies made
<input type="checkbox"/> You made it accessible on Web or in other public forum
<input type="checkbox"/> Repeated or long-term use |
|---|---|

CHECKLIST FOR FAIR USE

Please complete and retain a copy of this form in connection with each possible "fair use" of a copyrighted work for your project

Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 2.3-b

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input checked="" type="checkbox"/> Teaching (including multiple copies for classroom use) | <input type="checkbox"/> Commercial activity |
| <input checked="" type="checkbox"/> Research | <input type="checkbox"/> Profiting from the use |
| <input type="checkbox"/> Scholarship | <input type="checkbox"/> Entertainment |
| <input type="checkbox"/> Nonprofit Educational Institution | <input type="checkbox"/> Bad-faith behavior |
| <input type="checkbox"/> Criticism | <input type="checkbox"/> Denying credit to original author |
| <input type="checkbox"/> Comment | |
| <input type="checkbox"/> News reporting | |
| <input type="checkbox"/> Transformative or Productive use (changes the work for new utility) | |
| <input type="checkbox"/> Restricted access (to students or other appropriate group) | |
| <input type="checkbox"/> Parody | |

NATURE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input checked="" type="checkbox"/> Published work | <input type="checkbox"/> Unpublished work |
| <input type="checkbox"/> Factual or nonfiction based | <input type="checkbox"/> Highly creative work (art, music, novels, films, plays) |
| <input type="checkbox"/> Important to favored educational objectives | <input type="checkbox"/> Fiction |

AMOUNT

Favoring Fair Use

Opposing Fair Use

- | | |
|---|---|
| <input checked="" type="checkbox"/> Small quantity | <input type="checkbox"/> Large portion or whole work used |
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EFFECT

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
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| | <input type="checkbox"/> You made it accessible on Web or in other public forum |
| | <input type="checkbox"/> Repeated or long-term use |

CHECKLIST FOR FAIR USE

Please complete and retain a copy of this form in connection with each possible "fair use" of a copyrighted work for your project

Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-Membranes, Figure 2.3-6

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input checked="" type="checkbox"/> Teaching (including multiple copies for classroom use) | <input type="checkbox"/> Commercial activity |
| <input checked="" type="checkbox"/> Research | <input type="checkbox"/> Profiting from the use |
| <input type="checkbox"/> Scholarship | <input type="checkbox"/> Entertainment |
| <input type="checkbox"/> Nonprofit Educational Institution | <input type="checkbox"/> Bad-faith behavior |
| <input type="checkbox"/> Criticism | <input type="checkbox"/> Denying credit to original author |
| <input type="checkbox"/> Comment | |
| <input type="checkbox"/> News reporting | |
| <input type="checkbox"/> Transformative or Productive use (changes the work for new utility) | |
| <input type="checkbox"/> Restricted access (to students or other appropriate group) | |
| <input type="checkbox"/> Parody | |

NATURE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
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| <input type="checkbox"/> Factual or nonfiction based | <input type="checkbox"/> Highly creative work (art, music, novels, films, plays) |
| <input type="checkbox"/> Important to favored educational objectives | <input type="checkbox"/> Fiction |

AMOUNT

Favoring Fair Use

Opposing Fair Use

- | | |
|---|---|
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EFFECT

Favoring Fair Use

Opposing Fair Use

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| <input type="checkbox"/> Lack of licensing mechanism | <input type="checkbox"/> Numerous copies made |
| | <input type="checkbox"/> You made it accessible on Web or in other public forum |
| | <input type="checkbox"/> Repeated or long-term use |

CHECKLIST FOR FAIR USE

Please complete and retain a copy of this form in connection with each possible "fair use" of a copyrighted work for your project

Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 1.3-7

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
| <input checked="" type="checkbox"/> Teaching (including multiple copies for classroom use) | <input type="checkbox"/> Commercial activity |
| <input checked="" type="checkbox"/> Research | <input type="checkbox"/> Profiting from the use |
| <input type="checkbox"/> Scholarship | <input type="checkbox"/> Entertainment |
| <input type="checkbox"/> Nonprofit Educational Institution | <input type="checkbox"/> Bad-faith behavior |
| <input type="checkbox"/> Criticism | <input type="checkbox"/> Denying credit to original author |
| <input type="checkbox"/> Comment | |
| <input type="checkbox"/> News reporting | |
| <input type="checkbox"/> Transformative or Productive use (changes the work for new utility) | |
| <input type="checkbox"/> Restricted access (to students or other appropriate group) | |
| <input type="checkbox"/> Parody | |

NATURE

Favoring Fair Use

Opposing Fair Use

- | | |
|--|--|
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| <input type="checkbox"/> Factual or nonfiction based | <input type="checkbox"/> Highly creative work (art, music, novels, films, plays) |
| <input type="checkbox"/> Important to favored educational objectives | <input type="checkbox"/> Fiction |

AMOUNT

Favoring Fair Use

Opposing Fair Use

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| <input type="checkbox"/> Lack of licensing mechanism | <input type="checkbox"/> Numerous copies made |
| | <input type="checkbox"/> You made it accessible on Web or in other public forum |
| | <input type="checkbox"/> Repeated or long-term use |

CHECKLIST FOR FAIR USE

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Name: Myoungbae Lee Date: 05/05/09 Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Figure 2.3-8

Institution: Virginia Tech Prepared by: Myoungbae Lee

PURPOSE

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- Criticism
- Comment
- News reporting
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- Restricted access (to students or other appropriate group)
- Parody

Opposing Fair Use

- Commercial activity
- Profiting from the use
- Entertainment
- Bad-faith behavior
- Denying credit to original author

NATURE

Favoring Fair Use

- Published work
- Factual or nonfiction based
- Important to favored educational objectives

Opposing Fair Use

- Unpublished work
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- Fiction

AMOUNT

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- Small quantity
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- Amount is appropriate for favored educational purpose

Opposing Fair Use

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- Portion used is central to work or "heart of the work"

EFFECT

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- No similar product marketed by the copyright holder
- Lack of licensing mechanism

Opposing Fair Use

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- Significantly impairs market or potential market for copyrighted work or derivative
- Reasonably available licensing mechanism for use of the copyrighted work
- Affordable permission available for using work
- Numerous copies made
- You made it accessible on Web or in other public forum
- Repeated or long-term use

CHECKLIST FOR FAIR USE

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Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-Membranes, Figure 2.4-1

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

Favoring Fair Use

Opposing Fair Use

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- Nonprofit Educational Institution
- Criticism
- Comment
- News reporting
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NATURE

Favoring Fair Use

Opposing Fair Use

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- Important to favored educational objectives

- Unpublished work
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- Fiction

AMOUNT

Favoring Fair Use

Opposing Fair Use

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EFFECT

Favoring Fair Use

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Name: Myoungbae Lee

Date: 05/05/09

Solution-casting of Disulfonated Poly
(arylene ether sulfone) Multiblock Co-
Project: polymer Films for Proton Exchange
Membranes, Figure 4-3

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

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| <input type="checkbox"/> Criticism | <input type="checkbox"/> Denying credit to original author |
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NATURE

Favoring Fair Use

Opposing Fair Use

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| <input type="checkbox"/> Important to favored educational objectives | <input type="checkbox"/> Fiction |

AMOUNT

Favoring Fair Use

Opposing Fair Use

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EFFECT

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Name: Myoungbae Lee

Date: 05/05/09

Solution-casting of Disulfonated Poly
(arylene ether sulfone) Multiblock Co-
Project: polymer Films for Proton Exchange
Membranes, Figure 3.4-4

Institution: Virginia Tech

Prepared by: Myoungbae Lee

PURPOSE

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NATURE

Favoring Fair Use

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AMOUNT

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Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Table 2.1-1

Institution: Virginia Tech

Prepared by: Myoungbae Lee

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NATURE

Favoring Fair Use

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AMOUNT

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Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-polymer Films for Proton Exchange Membranes, Table 2.2-1

Institution: Virginia Tech

Prepared by: Myoungbae Lee

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| <input type="checkbox"/> Criticism | <input type="checkbox"/> Denying credit to original author |
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NATURE

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AMOUNT

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Name: Myoungbae Lee

Date: 05/05/09

Project: Solution-casting of Disulfonated Poly (arylene ether sulfone) Multiblock Co-Membranes, Table 2.2-2

Institution: Virginia Tech

Prepared by: Myoungbae Lee

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NATURE

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- Fiction

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