Designing a Hand Warmer Peer Grading Rubric

Whose lab report are you grading? _____

Grader's Name _____ Date _____ Period _____

***Take off at least one point for each box that is not checked in the table below.

Requirements	Earned Points	Possible Points	Comments
Heading ❑ Date of experiment ❑ Lab partner(s) ❑ Experiment Title		3	
Pre-Lab ❑ **Purpose** **Background Knowledge** (3 pts) ❑ $q=mc\Delta T$ ❑ mass, volume, solubility, calorimeter type, stability of temp ❑ solvent volume, calorimeter type, continuous stirring ❑ Independent: mass/type of solute; Dependent: ΔT ❑ Balance, grad. cyl., thermometer, repetition, calorimeter type **Materials** ❑ Bulleted list ❑ Accurate, Comprehensive **Procedure** **Safety** ❑ Comprehensive **Protocol** ❑ Imperative ❑ detailed enough to follow ❑ numbered steps		12	
Data ❑ Volume, Masses, Temps Data Table (-1/2 point if no title) -ionic solid, volume H_2O, mass solute, $T_{initial}$, T_{final}, ΔT ❑ Energy changes Data Table (-1/2 point if no title) -ionic solid, ΔT, q_{aq}, q_{cal}, q_{soln}, ΔH_{soln} ❑ Units included in header ❑ Lines drawn with a straight edge ❑ Complete, easy to interpret		5	
Data Processing **Calorimeter Contents Energy Change** ❑ $q_{aq} = mc\Delta T$ Substitution and Boxed answer with J units for each ionic solid: ❑ NaCl ❑ $CaCl_2$		22	

❑ $NaCH_3CO_2$ ❑ Na_2CO_3 ❑ LiCl ❑ NH_4Cl **Calorimeter Energy Change** ❑ $q_{cal} = C_{cal}\Delta T$ Substitution and Boxed answer with J units for each ionic solid: ❑ NaCl ❑ $CaCl_2$ ❑ $NaCH_3CO_2$ ❑ Na_2CO_3 ❑ LiCl ❑ NH_4Cl **Enthalpy Change** ❑ $\Delta H_{soln} = q_{soln}$ / moles solute Substitution and Boxed answer with kJ/mol units for each solid: ❑ NaCl ❑ $CaCl_2$ ❑ $NaCH_3CO_2$ ❑ Na_2CO_3 ❑ LiCl ❑ NH_4Cl ❑ All calculations are clearly labeled and easy to understand			

Conclusion and Evaluation ❑ Complete sentences ❑ Correct spelling and grammar Paragraph 1: ❑ CLAIM: Which chemical did they choose? ❑ EVIDENCE: Mass solute, mass solvent, temperature change REASONING: Justify ionic solid - must reference the following for at least 2 substances ❑ Cost – 2 points ❑ MSDS – 2 points ❑ Other commercial uses for chemical chosen Paragraph 2: ❑ Errors: heat lost to air, assumption of c_{H2O} = 4.18 J/g°C ❑ How do errors affect results? Be specific! ❑ How can results be improved? (Reasonable suggestions) ❑ Further experiments		13	
Presentation ❑ Well-organized, sections clearly labeled ❑ Neat, legible writing ❑ Table of contents includes information ❑ Page numbers included ❑ Lab is written in ink ❑ Errors properly crossed out, no white out ❑ Writes on one side of the page only		5	

Total points earned: _____ / 60

Write two things the student did well in this lab report:

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Write two things that the student could do to improve the lab report:

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