

Table 2.1: List of chemicals used in the present study

Chapter 3

Table 3.1: Crystal Lattice data of ZnO, BiVO₄ and ZnO- BiVO₄ (1:1)

List of Abbreviations

| | |
|-------------------|---------------------------------------|
| ATR | Auto-thermal Reforming |
| Bcm | Billion cubic meters |
| BG | Biomass Gasification |
| Bi | Bismuth |
| BiVO ₄ | Bismuth Vanadate |
| BOD | Biochemical Oxygen Demand |
| btoe | billion tonnes of oil equivalent |
| CASTEP | Cambridge Serial Total Energy Package |
| CB | Conduction Band |
| CBM | Conduction Band Minimum |
| CCD | Charge Coupled Device |
| CG | Coal Gasification |
| COD | Chemical Oxygen Demand |
| CPOX | Catalytic Partial Oxidation |
| DFT | Density Functional Theory |
| DI | De-ionised |
| DOE | Department of Energy |
| DOS | Density of States |
| EDAX | Energy Dispersive spectroscopy |

| | |
|----------|---------------------------------------|
| FT | Fischer- Tropsch |
| FWHM | Full Width Half maximum |
| Gt | Gigatonnes |
| GTL | Gas to Liquid |
| H-EL | Hydropower- electrolysis |
| HER | Hydrogen Evolution Reaction |
| IC | Internal Combustion |
| IEA | International Energy Agency |
| IPCE | Incident Photon to Current Efficiency |
| JCL | Jatropha curcas L |
| MB | Methylene Blue |
| N_D | Charge carrier density |
| OER | Oxygen Evolution Reaction |
| PEC | Photo Electrochemical |
| PEM | Polymer Electrolyte Membrane |
| PDOS | Project Density of States |
| PL | Photo Luminescence |
| ppm | parts per million |
| POX | Partial Oxidation |
| PV | Photo Voltaic |
| PV-EL | Photovoltaic-electrolysis |
| R_{CT} | Charge transfer resistance |
| RhB | Rhodamine B |
| SHE | Solar to Hydrogen Efficiency |
| SMR | Steam methane reforming |
| TDOS | Total Density of States |

| | |
|----------|----------------------------------|
| TEM | Transmission Electron Microscopy |
| TW | Terawatt |
| TRPL | Time-resolve Photo Luminescence |
| UV-vis | Ultraviolet-visible |
| V | Vanadium |
| VB | Valence Band |
| VBM | Valence Band Maximum |
| V_{FB} | Flat band potential |
| W-EL | Wind turbine- electrolysis |
| XPS | X-ray Photo Spectroscopy |
| XRD | X-ray diffraction |
| Zn | Zinc |
| ZnO | Zinc Oxide |