

14th European Conference on Industrial Furnaces and Boilers (INFUB-14)

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FLAME-PARTICLE INTERACTION INSIDE A PACKED BED OF PARTICLES: EXPERIMENTS TO
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HYDROGEN ADMIXTURE ON A NATURAL GAS-OXYGEN BURNER FOR GLASS-MELTING
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IMPROVEMENT OF RDF CONVERSION MODELS TO SIMULATE A CEMENT ROTARY KILN
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INVESTIGATIONS OF RADIANT TUBE ARRANGEMENTS AND THEIR EFFECT ON RADIATION EXCHANGE IN HORIZONTAL FURNACES

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LIQUID FUEL EVAPORATION UNDER ENTRAINED FLOW GASIFICATION CONDITIONS – INSIGHTS FOR BURNER DEVELOPMENT

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LOCALLY-RESOLVED DEM/CFD SIMULATIONS OF A GENERIC SHAFT KILN FOR LIME PRODUCTION

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MEASUREMENTS OF NOX EMISSIONS FROM BIOMASS COMBUSTION IN MEDIUM TO LARGE-SCALE POWER PLANTS

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NATURAL GAS-HYDROGEN FLAMES UNDER THE INFLUENCE OF CHANGING WALL CONDITIONS AND AIR STAGING: NUMERICAL AND EXPERIMENTAL INVESTIGATION IN A PILOT PLANT SCALED OPTICALLY ACCESSIBLE COMBUSTION CHAMBER

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NUMERICAL STUDY ON THE IMPACT OF SUBMODELS FOR PYROLYSIS AND CHAR CONVERSION IN TURBULENT SWIRLING PULVERISED SOLID FUEL FLAMES UNDER OXYFUEL CONDITIONS

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NUMERICAL INVESTIGATION OF CREEP DEFORMATION IN RADIANT TUBES UNDER CYCLIC THERMAL LOADS USING TRANSIENT CFD AND FEM MODELS

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ONLINE CORROSION MONITORING IN A WASTE CO-FIRED FLUIDIZED BED POWER PLANT

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OPERATIONAL DETERMINATION OF THE FRACTION COMPOSITION DURING WASTE INCINERATION

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OPERATIONAL PARAMETERS OF A 120 KW PYROLYSIS TEST PLANT FOR BIOMASS AND MIXED WASTE

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OPTIMISATION AND DIGITALISATION STRATEGIES FOR THE "FURNACE OF THE FUTURE" - ESPECIALLY FOR PLANTS OPERATED WITH HETEROGENEOUS SOLID FUELS

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OPTIMIZATION OF THE PLASMA-ASSISTED GASIFICATION PROCESS IN A VERTICAL ENTRAINED-FLOW GASIFIER THROUGH THE CFD SIMULATIONS

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OXY-FUEL COMBUSTION IN AN ENTRAINED FLOW TEST RIG FOR REGENERATION OF SPENT CALCIUM LOOPING SORBENTS

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OXYGEN SEPARATION WITH MIEC MEMBRANES ON A LAB SCALE OXY-FUEL FURNACE

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OVERALL PLANT OPTIMIZATION BY AUTOMATIC CONTROLLING WITH ACOUSTIC GAS TEMPERATURE MEASUREMENT – IMPROVEMENT OF EFFICIENCY, EMISSIONS, AND PLANT AVAILABILITY

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PARTICLE-RESOLVED NUMERICAL SIMULATION OF PYROLYSIS PROCESS OF A NON-IDEAL PLASTIC PARTICLE

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RETROFITTING OF A MAGNESIUM MELTING FURNACE WITH HYDROGEN BURNERS BY MEANS OF ENERGETIC BALANCING AND PROCESS OPTIMIZATION

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PLASTIC PYROLYSIS: AN EXPERIMENTAL STUDY ON THE CIRCULARITY OF ORGANIC-RICH FRACTION FROM MECHANICAL RECYCLING OF REFRIGERATORS

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PYROLYSIS OF HYDROCHARS DERIVED FROM CO-HYDROTHERMAL CARBONIZATION OF BIOMASS AND PLASTICS

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REACTIVITY ASSESSMENT OF CARBON-ZERO FUELS: METHANE, HYDROGEN, AND AMMONIA

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REHABILITATION OF AN EXISTING NATURAL GAS BOILER TO CO-COMBUSTION OF HYDROGEN RICH GAS

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SIMULATION MODEL OF A STRIP ANNEALING LINE TO IMPROVE PRODUCT QUALITY IN PRECISION STRIP PRODUCTION

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SOEFC PROCESS FOR HIGH-PURITY OXYGEN GENERATION: A CONCEPT STUDY

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SPECTRAL RESOLVED RADIATIVE HEAT FLUX MEASUREMENTS IN A COMBUSTION CHAMBER

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SUSTAINABLE PROCESS HEAT: CONDITIONING OF BIOGENIC SYNTHESIS GASES FROM GASIFICATION FOR DIRECT USE IN CONVENTIONAL BURNER SYSTEMS

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THERMOCHEMICAL RECYCLING OF PLASTICS: STATE OF THE ART AND THE PROCESS ENGINEERING CHALLENGES AHEAD

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THE FLOX-2 PROJECT: A REVIEW OF THE BASIC STUDIES

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THE INFLUENCE OF PARTICLE SIZE ON THE QUARTZ SAND CALCINATION IN ROTARY KILNS

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TOWARDS GENERAL REACTOR NETWORK MODELING FOR METAL FUEL COMBUSTION

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TOWARDS USING LARGE EDDY SIMULATION FOR ANALYSIS OF COMBUSTION CHARACTERISTICS IN A 1 MW BIOMASS BURNER

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TRANSFERABILITY OF EMPIRICAL AND NETWORK PYROLYSIS MODELS TO TORREFACTION BOUNDARY CONDITIONS

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WEIGHTED SUM OF GREY GASES RADIATION MODEL FOR OXYGEN-ENRICHED COMBUSTION OF HYDROGEN-METHANE MIXTURES

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A NOVEL PARTIALLY AERATED SWIRL BURNER DESIGN FOR BIOMASS THERMOCHEMICAL APPLICATIONS

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ENERGY EFFICIENT ALUMINIUM MOLTEN METAL HOLDING FURNACE

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HYDROGEN FROM BIOMASS: EFFECT OF OXYGEN ENRICHMENT ON STEAM GASIFICATION

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STUDY OF FLAME AND HEAT TRANSFER CHARACTERISTICS OF A PREMIXED HYDROGEN-BLENDED METHANE DUAL FLAME IMPINGING ON A FLAT PLATE

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CHEMICAL RECYCLING OF PLASTIC WASTE COMPARED TO A CONVENTIONAL VALORISATION PATHWAY

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CHEMICAL CHARACTERIZATION OF CONDENSED PHASES FROM WASTE PLASTICS PYROLYSIS

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COMBUSTION IN A COKE OVEN BATTERY: NUMERICAL MODELLING AND TESTING WITH FOCUS ON NOX EMISSION

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COW BONE WASTE USES AS A CATALYST FOR PYROLYSIS OF LIGNOCELLULOSIC BIOMASSES

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GREEN HYDROGEN APPLICATION IN THE HARD-TO-ABATE INDUSTRY: A FEASIBILITY STUDY

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HEAT TRANSFER CHARACTERISTICS OF AMMONIA COMBUSTION IN INDUSTRIAL FURNACES

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INTEGRATION OF MOLTEN CARBONATE FUEL CELLS (MCFCS) IN THE GLASSMAKING PROCESS TO ALLOW DECARBONISATION AND SUPPORTING ELECTRIFICATION

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KINETICS OF IRON REDUCTION UPON REDUCTION/OXIDATION CYCLES

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MULTI-MATERIAL INJECTION SYSTEM TO FOSTER CIRCULARITY: VALORIZATION OF RECYCLED POLYMERS FROM WASTE PLASTICS IN ELECTRIC ARC FURNACE

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RIPLAID CONCEPT FOR VALORIZATION OF WASTE PLASTICS INTO GASOLINE: FROM LABORATORY TO PRE-INDUSTRIAL SCALE

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SIMULATION AND VALIDATION AGAINST FULL-SCALE TESTING OF A 35 MW INDUSTRIAL BURNER WORKING IN MILD COMBUSTION REGIME

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THERMOCHEMICAL VALORIZATION OF LIGNOCELLULOSIC WASTES INTO SUSTAINABLE BIOMATERIALS AND BIOFUELS

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SPECTRAL ANALYSIS OF ALTERNATIVE LOW-CARBON FUEL COMBUSTION IN PLASMA-ASSISTED BURNER

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XDEM TECHNOLOGY SUPPORTING THE TRANSITION FROM BLAST TO DIRECT REDUCTION IRON (DRI) FURNACES

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ASSESSMENT OF SYNGAS QUALITY FROM PLASTIC GASIFICATION FOR METHANOL SYNTHESIS

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GAS TURBINE OPERATION WITH HYDROGEN BLENDS

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EXPERIMENTAL AND NUMERICAL INVESTIGATION OF A MILD COMBUSTOR FOR GAS TURBINE APPLICATIONS

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GRANULAR MIXING EFFECTS ON RECYCLING OF STEELMAKING BY-PRODUCTS USING MICROWAVE HEATING

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COMBUSTION CHARACTERISTICS ON PERIODIC FUEL-FLOW CONTROL IN AN INDUSTRIAL FURNACE

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EFFECT OF NH₃ ADDITION ON A NATURAL GAS FUELED INDUSTRIAL RADIANT TUBE BURNER

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EXPERIMENTAL STUDY ON COAL/AMMONIA CO-FIRING IN A 80KW TH SINGLE BURNER SCALE AND 1MW TH MULT BURNER SCALE FURNACE

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NUMERICAL STUDY ON INFLUENCES OF NITROGEN CONTENTS IN FUEL AND OXIDIZER ON NITROGEN OXIDE EMISSIONS DURING OXY-FUEL COMBUSTION OF NATURAL GAS

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NUMERICAL INVESTIGATION ON AIR INFILTRATION IMPACT ON NITROGEN OXIDE EMISSIONS DURING NG-O₂ COMBUSTION

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NUMERICAL SIMULATION OF INDUSTRIAL BURNERS FOR OXY-FUEL COMBUSTION

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THE PARADIGMATIC SHIFT TOWARDS ELECTRIFICATION IN CONTINUOUS STEEL-STRIP ANNEALING FURNACES

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BEHAVIOUR OF DIFFERENT OXYGEN CARRIERS IN THE CHEMICAL LOOPING COMBUSTION OF PLASTIC RESIDUES

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ENERGY STORAGE USING DIRECT IRON OXIDE REDUCTION AND ENERGY UTILIZATION WITH HIGH TEMPERATURE METAL COMBUSTION

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FLEXIBLE GREEN HYDROGEN COMBUSTION

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A COMPREHENSIVE APPROACH FOR SAMPLING AND ANALYZING PRODUCT MIXTURES FROM A SEMI-INDUSTRIAL SCALE FLUIDIZED BED STEAM CRACKER

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CHARACTERIZATION OF PACKED BED REACTORS USING X-RAY MICROTOMOGRAPHY: EFFECT OF PARTICLE IRREGULARITY AND PARTICLE SIZE DISTRIBUTION ON THE BED MORPHOLOGY

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DIRECT CRACKING IN THERMAL PLASMA - A MEAN FOR DECARBONIZATION OF STEAM CRACKING FURNACES

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EXPLORING FLUIDIZED BED TECHNOLOGY FOR BIOCARBON PRODUCTION WITH ALKALI/PHOSPHORUS MITIGATION

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EX-SITU CATALYTIC PYROLYSIS OF ELECTRONIC PLASTIC WASTE USING COMBINED CAO, HZSM-5 AND FE/HZSM-5 CATALYSTS FOR IMPROVING HYDROCARBONS YIELD

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HEAT TRANSFER ENHANCEMENT OF A THERMAL PLASMA IN A ROTARY KILN FOR CEMENT PRODUCTION

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IS A TWO-STEP THERMOCHEMICAL CONVERSION AN ALTERNATIVE ROUTE TO MAXIMIZE WASTE TIRES CIRCULARITY?

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OPTIMIZING CONSUMPTION OF VIRGIN BED MATERIAL WITH FLUIDIZED BED DIAGNOSTIC TOOLS

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OVERVIEW OF EFFECTIVITY AND PRODUCTIVITY IMPROVEMENTS IN REHEATING FURNACES OVER THE LAST 25 YEARS: RESEARCH DEVELOPMENT, STATE OF THE ART AND FUTURE RESEARCH NEEDS

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THERMOCHEMICAL RECYCLING OF MIXED PLASTIC WASTES THROUGH PYROLYSIS AND STEAM CRACKING – ASSESSMENT OF CENTRALIZED VS. DECENTRALIZED APPROACHES.

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TOWARDS SUSTAINABLE TEXTILE WASTE MANAGEMENT: EXPLORING VALUABLE CHEMICALS PRODUCTION THROUGH STEAM CRACKING IN A DUAL FLUIDIZED BED
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TECHNICAL AND MARKET CHALLENGES IN THE CHEMICAL RECYCLING OF PLASTIC WASTES

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THE ENERGY TRANSITION AND ITS EFFECTS ON PROCESS INSTRUMENTATION

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Tunisia

COMBINED EFFECTS OF SQUARE FITTED WAVY WINGS AND RADIATIVE NANOFUID ON COOLING ELECTRONIC DEVICES

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Turkey

NUMERICAL ANALYSIS OF HEATING ZONE OF THE CONTINUOUS ANNEALING FURNACE: EFFECT OF HEIGHT AND THICKNESS OF THE GLASS BOTTLES ON THE TEMPERATURE DISTRIBUTION OF GLASS BOTTLES.

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NUMERICAL INVESTIGATION OF THERMAL RADIATION IN THE COMBUSTION ZONE OF A GLASS MELTING FURNACE

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OPTIMIZING HEAT TREATMENT FURNACE OPERATING CONDITIONS: AN INVERSE SOLUTION METHODOLOGY

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A 2-ZONE MATHEMATICAL MODEL FOR THERMAL DESIGN AND NOX FORECASTING ON HIGH TEMPERATURE INDUSTRIAL FURNACES

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APPLICATION OF GLASS MELTER NOX REDUCTION TECHNIQUES TO STEEL REHEATING FURNACES FIRING NATURAL GAS, COKE OVEN GAS AND HYDROGEN.

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CFD BASED SOLUTIONS TO RESOLVE COMBUSTION AND EMISSIONS ISSUES OF WASTE-TO-ENERGY PLANTS

Anura Perera, Thomas Ball, John Goldring, Gerry Riley
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CHEMICAL RECYCLING OF PLASTIC WASTE VIA PYROLYSIS USING WASTE-DERIVED CATALYSTS

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COMPARISON OF THE NOX EMISSIONS FOR A 70KW DUAL FUEL HYDROGEN/NATURAL GAS INDUSTRIAL BURNER

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EXPERIMENTAL INVESTIGATIONS & ALGEBRAIC COMBUSTION MODEL PREDICTIONS FOR HYDROGEN-ENRICHED LEAN HYDROCARBON/AIR MIXTURES OF DIFFERENT LEWIS NUMBERS

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HYDROGEN FOR INDUSTRIAL DECARBONISATION

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USE OF CRACKED AMMONIA FOR THE REPLACEMENT OF PROPANE IN INDUSTRIAL BOILERS

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QUANTIFICATION OF ORGANIC VOLATILE SPECIES FROM BIOMASS COMBUSTION

Amanda Lea-Langton, James Allan, Arthur Garforth
The University of Manchester, United Kingdom

QUANTIFYING THE EFFECT OF RESIDENCE TIME AND EQUIVALENCE RATIO ON RADIATIVE HEAT TRANSFER FROM HYDROGEN-METHANE BLENDED FLAMES BY USE OF A DIFFUSION SWIRL BURNER

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WHISKY DISTILLERY BIOMASS WASTE PRODUCTS AND THEIR POTENTIAL, USING AIR GASIFICATION, TO GENERATE A BIOMASS GASIFICATION GAS (BGG) TO DECARBONISE THE DISTILLERY HEAT.

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A COMPARISON OF REHEATING METALS IN COMBUSTION PROCESSES USING NATURAL GAS AND HYDROGEN FUELS

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COMBUSTION AND CONVECTION RESEARCH

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CUTTING NOX EMISSIONS WHEN EXECUTING FACILITY-WIDE ENERGY TRANSITIONS TO
100% HYDROGEN AND RENEWABLE FUELS WITH THE CALLIDUS® ULTRA BLUE® BURNER
SYSTEM

Kurt Kraus

Honeywell UOP Callidus, United States of America