Corrosion Potential Refinery Overhead Systems

Corrosion Problems and Solutions in Oil Refining and Petrochemical IndustryAmine Unit Corrosion in RefineriesCorrosion Inhibitors in the Oil and Gas IndustryPetroleum Refining Design and Applications Handbook, Volume 1Fouling in RefineriesBiodesulfurization in Petroleum Refining Petroleum Refining Design and Applications Handbook, Volume 5Dewatering, Desalting, and Distillation in Petroleum RefiningCorrosion in RefineriesRefinery Products and Product Improvement Processes VOC Emissions from Petroleum Refinery Wastewater SystemsIssues in Energy Conversion, Transmission, and Systems: 2011 EditionMaterials PerformanceCorrosion and Materials SelectionCorrosion in the Petrochemical Industry, Second EditionNovel Anti-Corrosion and Anti-Fouling Coatings and Thin FilmsProcess Systems Engineering 2003Advances in Refining CatalysisRefinery Energy ProfileCorrosion in the Petrochemical IndustryHandbook of Engineering Practice of Materials and CorrosionThe Chemistry and Technology of PetroleumTransactions of the Canadian Society of Civil EngineersTransactions ... Corrosion InhibitorsHandbook of Water and Wastewater Treatment TechnologyPetroleum Biodegradation and Oil Spill BioremediationCrude Unit Corrosion GuideSolutions to Equipment FailuresDeep Shale Oil and GasGas PurificationThe Progress in Corrosion - The First 50 Years of the EFCShale Oil and Gas Production ProcessesElements of Petroleum Refinery EngineeringEnvironmental Analysis and Technology for the Refining IndustryDistillation TroubleshootingCorrosion in Amine Treating UnitsHigh Acid CrudesCorrosion Inhibitors in the Oil and Gas IndustryDynamics and Control of Chemical Reactors and Distillation Columns Alec Groysman J Harston Viswanathan S. Saji A. Kayode Coker James G. Speight Nour Shafik El-Gendy A. Kayode Coker James G. Speight J Harston James G. Speight Alireza Bahadori Hari Murthy Bingzhen Chen Deniz Uner Linda Garverick Jung-Chul (Thomas) Eun James G. Speight Engineering Institute of Canada Jacob I. Bregman Paul N. Cheremisinoff Karuna K. Arjoon Gutzeit Joerg P. F. Timmins James G. Speight Arthur L Kohl Paul McIntyre James G. Speight O.P. Gupta James G. Speight Henry Z. Kister Johan van Roij James G. Speight Viswanathan S. Saji C. McGreavy

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Progress in Corrosion - The First 50 Years of the EFC Shale Oil and Gas Production Processes Elements of Petroleum Refinery Engineering Environmental Analysis and Technology for the Refining Industry Distillation Troubleshooting Corrosion in Amine Treating Units High Acid Crudes Corrosion Inhibitors in the Oil and Gas Industry Dynamics and Control of Chemical Reactors and Distillation Columns Alec Groysman J Harston Viswanathan S. Saji A. Kayode Coker James G. Speight Nour Shafik El-Gendy A. Kayode Coker James G. Speight J Harston James G. Speight Alireza Bahadori Hari Murthy Bingzhen Chen Deniz Uner Linda Garverick Jung-Chul (Thomas) Eun James G. Speight Engineering Institute of Canada Jacob I. Bregman Paul N. Cheremisinoff Karuna K. Arjoon Gutzeit Joerg P. F. Timmins James G. Speight Arthur L Kohl Paul McIntyre James G. Speight O.P. Gupta James G. Speight Henry Z. Kister Johan van Roij James G. Speight Viswanathan S. Saji C. McGreavy

this book addresses corrosion problems and their solutions at facilities in the oil refining and petrochemical industry including cooling water and boiler feed water units further it describes and analyzes corrosion control actions corrosion monitoring and corrosion management corrosion problems are a perennial issue in the oil refining and petrochemical industry as they lead to a deterioration of the functional properties of metallic equipment and harm the environment both of which need to be protected for the sake of current and future generations accordingly this book examines and analyzes typical and atypical corrosion failure cases and their prevention at refineries and petrochemical facilities including problems with pipelines tanks furnaces distillation columns absorbers heat exchangers and pumps in addition it describes naphthenic acid corrosion stress corrosion cracking hydrogen damages sulfidic corrosion microbiologically induced corrosion erosion corrosion and corrosion fatigue occurring at

refinery units at last fouling corrosion and cleaning are discussed in this book

the corrosion of carbon steels in amine units used for gas treatment in refining operations is a major problem for the petrochemical industry maximising amine unit reliability together with improving throughput circulation and treatment capacity requires more effective ways of measuring and predicting corrosion rates however there has been a lack of data on corrosion this valuable report helps to remedy this lack of information by summarising findings from over 30 plants it covers such amine types as methyl diethanolamine mdea diethanolamine dea monoethanolamine mea and di isopropanolamine dipa and makes recommendations on materials and process parameters to maximise amine unit efficiency and reliability covers such amine types as methyl diethanolamine mdea and di isopropanolamine makes recommendations on materials and process parameters to maximise amine unit efficiency and reliability

provides comprehensive coverage of corrosion inhibitors in the oil and gas industries considering the high importance of corrosion inhibitor development for the oil and gas sectors this book provides a thorough overview of the most recent advancements in this field it systematically addresses corrosion inhibitors for various applications in the oil and gas value chain as well as the fundamentals of corrosion inhibition and interference of inhibitors with co additives corrosion inhibitors in the oil and gas industries is presented in three parts the first part on fundamentals and approaches focuses on principles and processes in the oil and gas industry the types of corrosion encountered and their control methods environmental factors affecting inhibition material selection strategies and economic aspects of corrosion the second part on choice of inhibitors examines corrosion inhibitors for acidizing processes inhibitors for sweet and sour corrosion inhibitors in refinery operations high temperature corrosion inhibitors

inhibitors for challenging corrosive environments inhibitors for microbiologically influenced corrosion polymeric inhibitors vapor phase inhibitors and smart controlled release inhibitor systems the last part on interaction with co additives looks at industrial co additives and their interference with corrosion inhibitors such as antiscalants hydrate inhibitors and sulfide scavengers presents a well structured and systematic overview of the fundamentals and factors affecting corrosion acts as a handy reference tool for scientists and engineers working with corrosion inhibitors for the oil and gas industries collectively presents all the information available on the development and application of corrosion inhibitors for the oil and gas industries offers a unique and specific focus on the oil and gas industries corrosion inhibitors in the oil and gas industries is an excellent resource for scientists in industry as well as in academia working in the field of corrosion protection for the oil and gas sectors and will appeal to materials scientists electrochemists chemists and chemical engineers

there is a renaissance that is occurring in chemical and process engineering and it is crucial for today s scientists engineers technicians and operators to stay current with so many changes over the last few decades in equipment and processes petroleum refining is almost a living document constantly needing updating with no new refineries being built companies are spending their capital re tooling and adding on to existing plants refineries are like small cities today as they grow bigger and bigger and more and more complex a huge percentage of a refinery can be changed literally from year to year to account for the type of crude being refined or to integrate new equipment or processes this book is the most up to date and comprehensive coverage of the most significant and recent changes to petroleum refining presenting the state of the art to the engineer scientist or student useful as a textbook this is also an excellent handy go to reference

for the veteran engineer a volume no chemical or process engineering library should be without written by one of the world's foremost authorities this book sets the standard for the industry and is an integral part of the petroleum refining renaissance it is truly a must have for any practicing engineer or student in this area

fouling in refineries is an important and ongoing problem that directly affects energy efficiency resulting in increased costs production losses and even unit shutdown requiring costly expenditures to clean up equipment and return capacity to positive levels this text addresses this common challenge for the hydrocarbon processing community within each unit of the refinery as refineries today face a greater challenge of accepting harder to process heavier crudes and the ongoing flow of the lighter shale oil feedstocks resulting in bigger challenges to balance product stability within their process equipment this text seeks to inform all relative refinery personnel on how to monitor fouling characterize the deposits and follow all available treatments with basic modeling and chemistry of fouling and each unit covered users will learn how to operate at maximum production rates and elongate the efficiency of their refinery s capacity presents an understanding of the breakdown of fouling per refinery unit including distillation and coking units provides all the factors crude types and refining blends that cause fouling especially the unconventional feedstocks and high acid crudes used today helps users develop an analysis based treatment and control strategy that empowers them to operate refinery equipment at a level that prevents fouling from occurring

from basic tenets to the latest advances this is the most comprehensive and up to date coverage of the process of biodesulfurization in the petroleum refining industry petroleum refining and process engineering is constantly changing no new refineries are being built but companies all

over the world are still expanding or re purposing huge percentages of their refineries every year year after year rather than building entirely new plants companies are spending billions of dollars in the research and development of new processes that can save time and money by being more efficient and environmentally safer biodesulfurization is one of those processes and nowhere else it is covered more thoroughly or with more up to date research of the new advances than in this new volume from wiley scrivener besides the obvious benefits to biodesulfurization there are new regulations in place within the industry with which companies will over the next decade or longer spend literally tens if not hundreds of billions of dollars to comply whether for the veteran engineer needing to update his or her library the beginning engineer just learning about biodesulfurization or even the student in a chemical engineering class this outstanding new volume is a must have especially it covers also the bioupgrading of crude oil and its fractions biodenitrogenation technology and application of nanotechnology on both biodesulfurization and biodenitrogenation technologies

petroleum refining with no new refineries having been built in decades companies continue to build onto or reverse engineer and re tool existing refineries with so many changes in the last few years alone books like this are very much in need there is truly a renaissance for chemical and process engineering going on right now across multiple industries this fifth and final volume in the petroleum refining design and applications handbook set this book continues the most up to date and comprehensive coverage of the most significant and recent changes to petroleum refining presenting the state of the art to the engineer scientist or student besides the list below this groundbreaking new volume describes blending of products from the refinery applying the ternary diagrams and classifications of crude oils flash point blending pour point

blending aniline point blending smoke point and viscosity blending cetane and diesel indices the volume further reviews refinery operational cost cost allocation of actual usage project and economic evaluation involving cost estimation cash flow involving return on investment net present values discounted cash flow rate of return net present values payback period inflation and sensitivity analysis and so on it reviews global effects on the refining economy carbon tax carbon foot print global warming potential carbon dioxide equivalent carbon credit carbon offset carbon price and so on it reviews sustainability in petroleum refining and alternative fuels biofuels and so on impact of the overall greenhouse effects carbon capture and storage in refineries process intensification in biodiesel biofuel from green diesel acid gas removal and emerging technologies carbon capture and storage gas heated reformer unit pressure swing adsorption process steam methane reforming for fuel cells grey blue and green hydrogen production new technologies for carbon capture and storage carbon clean process design refinery of the future refining and petrochemical industry characteristics the text is packed with excel spreadsheet calculations and honeywell unisim design software in some examples and it includes an invaluable glossary of petroleum and petrochemical technical terminologies useful as a textbook this is also an excellent handy go to reference for the veteran engineer a volume no chemical or process engineering library should be without written by one of the world s foremost authorities this book sets the standard for the industry and is an integral part of the petroleum refining renaissance it is truly a must have for any practicing engineer or student in this area

this book presents a detailed and practical description of various processes dewatering desalting and distillation that prepare refinery feedstocks for different conversion processes they will go through relevant process data are provided and process operations are fully described this accessible guide is written for managers professionals and technicians as well as graduate students transitioning into the refining industry key features describes feedstock evaluation and the effects of elemental chemical and fractional composition details the equipment and components and possible impacts due to composition explores the process options and parameters involved in dewatering desalting and distillation considers next generation processes and developments

corrosion in ageing refinery plant presents a serious safety hazard this important book summarises key research into corrosion processes in refinery equipment how it can be measured and controlled the book reviews factors affecting corrosion such as carburisation and metal dusting as well as corrosion in steel and other materials used in refinery technology it considers corrosion in a range of refinery equipment such as storage tanks hf alkylation units sour water strippers and insulated units other chapters discuss ways of testing for corrosion and cracking in refineries together with integrity and life cycle assessment techniques there is also coverage of ways of trouble shooting corrosion problems and preventative measures such as coating systems with its distinguished editor and team of contributors corrosion in refineries is a valuable reference for all those concerned with building and maintaining refineries in the petrochemical industry summarises key research into corrosion processes in refinery equipment discusses ways of testing for corrosion and cracking in refineries

this book focuses on the various refinery products product improvement processes and solvent processes that are used in the refining industry and the processes used in product improvement to ensure products meet sales specifications this accessible book is written for engineers scientists students and academics wanting an update on crude oil processing and insight into the direction of the industry key features describes the development of technologies for a variety of feedstocks including heavy feedstocks utilizing advanced pre treatment processing and hydrotreating presents the initial refining processes and prepares for the new changes and evolution of the industry including the role of biomass in the future refinery analyses catalyst deactivation mechanism for developing optimum technologies for processing feedstocks with low reactivity includes an extensive glossary which will be beneficial for non technical readers

issues in energy conversion transmission and systems 2011 edition is a scholarlyeditions ebook that delivers timely authoritative and comprehensive information about energy conversion transmission and systems the editors have built issues in energy conversion transmission and systems 2011 edition on the vast information databases of scholarlynews you can expect the information about energy conversion transmission and systems in this ebook to be deeper than what you can access anywhere else as well as consistently reliable authoritative informed and relevant the content of issues in energy conversion transmission and systems 2011 edition has been produced by the world's leading scientists engineers analysts research institutions and companies all of the content is from peer reviewed sources and all of it is written assembled and edited by the editors at scholarlyeditions and available exclusively from us you now have a source you can cite with authority confidence and credibility more information is available at scholarlyeditions com

the petroleum and chemical industries contain a wide variety of corrosive environments many of which are unique to these industries oil and gas production operations consume a tremendous amount of iron and steel pipe tubing pumps valves and sucker rods metallic corrosion is costly however the cost of corrosion is not just financial beyond the huge direct outlay of funds to repair or replace corroded structures are the indirect costs natural resources potential hazards and lost opportunity wasting natural resources is a direct contradiction to the growing need for sustainable development by selecting the correct material and applying proper corrosion protection methods these costs can be reduced or even eliminated this book provides a minimum design requirement for consideration when designing systems in order to prevent or control corrosion damage safely and economically and addresses corrosion problems in petroleum and chemical industries requirements for corrosion control chemical control of corrosive environments corrosion inhibitors in refineries and petrochemical plants materials selection and service life of materials surface preparation protection and maintainability corrosion monitoring plant inspection techniques and laboratory corrosion testing techniques intended for engineers and industry personnel working in the petroleum and chemical industries this book is also a valuable resource for research and development teams safety engineers corrosion specialists and researchers in chemical engineering engineering and materials science originally published in 1994 this second edition of corrosion in the petrochemical industry collects peer reviewed articles written by experts in the field of corrosion that were specifically chosen for this book because of their relevance to the petrochemical industry this edition expands coverage of the different forms of corrosion including the effects of metallurgical variables on the corrosion of several alloys it discusses protection methods including discussion of corrosion inhibitors and corrosion resistance of aluminum magnesium stainless steels and nickels it also includes a section devoted specifically to petroleum and petrochemical industry related issues

nanomaterials and nanocomposite materials have been developed as corrosion inhibitors and are the most noble and effective alternatives to traditional organic corrosion inhibitors nanomaterials provide reasonably high anticorrosive activity in both aqueous and solution phases a unified approach to this task is lacking however which highlights the role of all disciplines involved in the creation and use of corrosion protection coatings for metals fouling is the process of accumulating unwanted material that is mostly non living and comprised of detritus and organic or inorganic compounds or organisms such as tiny viruses up to giant kelps this book covers both the processes of biofouling and anti bio fouling and the devices that stop the biofouling process this book provides a missing synopsis by providing an understanding of the anticorrosive and anti biofouling effects of nanomaterials and nanocomposites under different environments it features an up to date picture of the quality and chemistry of a substrate surface its proper preparation by conversion treatment the function of resins and anticorrosive pigments in paints and novel concepts for corrosion protection

contains proceedings from the 8th international symposium on process systems engineering pse which brought together the global community of process systems engineering researchers and practitioners involved in the creation and application of computing based methodologies for planning design operation control and maintenance of chemical processes contains proceeding from the 8th international symposium on process systems engineeringconference theme for pse 2003 is supporting business decision making

to meet changing market demands that have stringent emission standards and to ensure proper performance in refinery units evaluation of novel catalyst designs and results from material characterization and testing of catalysts are of crucial importance for refiners as well as for catalyst manufacturers this book highlights recent developments in the application of refinery catalysts in selected units such as fluid catalytic cracking fcc hydrogen production for hydroprocessing units hydrotreating hydrocracking and sustainable processing of biomass into biofuels

a comprehensive collection of peer reviewed data and information on corrosion in the petroleum petrochemical and chemical processing industries from a number of asm international publications the principal sources are corrosion volume 13 and failure analysis and prevention volume 11 of asm h

this handbook is an in depth guide to the practical aspects of materials and corrosion engineering in the energy and chemical industries the book covers materials corrosion welding heat treatment coating test and inspection and mechanical design and integrity a central focus is placed on industrial requirements including codes standards regulations and specifications that practicing material and corrosion engineers and technicians face in all roles and in all areas of responsibility the comprehensive resource provides expert guidance on general corrosion mechanisms and recommends materials for the control and prevention of corrosion damage and offers readers industry tested best practices rationales and case studies

refineries must not only adapt to evolving environmental regulations for cleaner product specifications and processing but also find ways to meet the increasing demand for petroleum products particularly for liquid fuels and petrochemical feedstocks the chemistry and technology of petroleum fourth edition offers a 21st century perspective

offers information on the treatment of water and wastewater for municipal sanitary and

industrial applications focusing on unit operations and processes that serve the broadest range of users wastewater treatement unit operations including filtration flotation chemical coagulation flocculation and sedimentation as well as advanced technolog

the prime focus of the book is to determine the mechanism extent and efficiency of biodegradation processes as it is necessary to know the composition of the original crude oil or crude oil product the technology of bioremediation and the concerns of whether or not bioremediation technologies can accelerate this natural process enough to be considered practical and if so whether they might find a niche as replacements for or adjuncts to other crude oil spill response technologies this book also introduces the reader to the science of the composition of crude oil and crude oil products is at the core of understanding the chemistry of biodegradation and bioremediation processes

this revision is based primarily on the author's experience dealing with all aspects of corrosion and fouling in crude units the guide also reflects the industry's consensus experiences reported at past meetings of the nace1 stg34 committee on petroleum refining and gas processing and the api2 subcommittee on corrosion and materials

natural gas and crude oil production from hydrocarbon rich deep shale formations is one of the most quickly expanding trends in domestic oil and gas exploration vast new natural gas and oil resources are being discovered every year across north america and one of those new resources comes from the development of deep shale formations typically located many thousands of feet below the surface of the earth in tight low permeability formations deep shale oil and gas provides an introduction to shale gas resources as well as offer a basic understanding of the

geomechanical properties of shale the need for hydraulic fracturing and an indication of shale gas processing the book also examines the issues regarding the nature of shale gas development the potential environmental impacts and the ability of the current regulatory structure to deal with these issues deep shale oil and gas delivers a useful reference that today s petroleum and natural gas engineer can use to make informed decisions about meeting and managing the challenges they may face in the development of these resources clarifies all the basic information needed to quickly understand today s deeper shale oil and gas industry horizontal drilling fracture fluids chemicals needed and completions addresses critical coverage on water treatment in shale and important and evolving technology practical handbook with real world case shale plays discussed especially the up and coming deeper areas of shale development

this massively updated and expanded fifth edition is the most complete authoritative engineering treatment of the dehydration and gas purification processes used in industry today of great value to design and operations engineers it gives practical process and equipment design descriptions basic data plant performance results and other detailed information on gas purification processes and hardware this latest edition incorporates all significant advances in the field since 1985 you will find major new chapters on the rapidly expanding technologies of nitrogen oxide control with discussions of regulatory requirements and available processes absorption in physical solvents covering single component and mixed solvent systems and membrane permeation with emphasis on the gas purification applications of membrane units in addition new sections cover areas of strong current interest particularly liquid hydrocarbon treating claus plant tail gas treating thermal oxidation of volatile organic compounds and sulfur scavenging processes this volume brings you expanded coverage of alkanolamines for hydrogen sulfide and carbon

dioxide removal the removal and use of ammonia in gas purification the use of alkaline salt solutions for acid gas removal and the use of water to absorb gas impurities the basic technologies and all significant advances in the following areas are thoroughly described sulfur dioxide removal and recovery processes processes for converting hydrogen sulfide to sulfur liquid phase oxidation processes for hydrogen sulfide removal the absorption of water vapor by dehydrating solutions gas dehydration and purification by adsorption and the catalytic and thermal conversion of gas impurities

this book focuses on developments during the first fifty years of existence of the european federation of corrosion and describes the contributions made by its working parties

shale oil and gas production processes delivers the basics on current production technologies and the processing and refining of shale oil starting with the potential of formations and then proceeding to production and completion this foundational resource also dives into the chemical and physical nature of the precursor of oil shale kerogen to help users understand and optimize its properties in shale rounding out with reporting in situ retorting refining and environmental aspects this book gives engineers and managers a strong starting point on how to manage the challenges and processes necessary for the further development of these complex resources helps readers grasp current research on production from shale formations including properties and composition fill in the gaps between research and practical application including discussions of existing literature includes a glossary to help readers fully understand key concepts

this book is targeted to benefit the diploma in engineering students degree in engineering

students b tech chemical engineering petroleum engineering petrochemical engineering aeronautical engg amie amiiche students etc m tech students of various disciplines pursuing courses on petroleum refining faculty members teaching staff of engineering college iit s nit s etc practicing petroleum engineers consultants refiners in various private sector public sector undertakings state central government departments ngo s etc students of foreign universities of developing countries pursuing diploma degree postgraduate courses in various engineering disciplines having a paper in petroleum refinery engineering

a timely hands on guide to environmental issues and regulatory standards for the petroleum industry environmental analysis and testing methods are an integral part of any current and future refining activities today s petroleum refining industry must be prepared to meet a growing number of challenges both environmental and regulatory environmental analysis and technology for the refining industry focuses on the analytical issues inherent in any environmental monitoring or cleanup program as they apply to today s petroleum industry not only during the refining process but also during recovery operations transport storage and utilization designed to help today s industry professionals identify test methods for monitoring and cleanup of petroleum based pollutants the book provides examples of the application of environmental regulations to petroleum refining and petroleum products as well as current and proposed methods for the mitigation of environmental effects and waste management part i introduces petroleum technology refining and products and reviews the nomenclature used by refiners environmental scientists and engineers part ii discusses environmental technology and analysis and provides information on environmental regulation and the impact of refining coverage includes in depth descriptions of analyses related to gaseous emissions liquid effluents

and solid waste a checklist of relevant environmental regulations numerous real world examples of the application of environmental regulations to petroleum refining and petroleum products an analysis of current and proposed methods of environmental protection and waste management

the first book of its kind on distillation technology the last half century of research on distillation has tremendously improved our understanding and design of industrial distillation equipment and systems high speed computers have taken over the design control and operation of towers invention and innovation in tower internals have greatly enhanced tower capacity and efficiency with all these advances one would expect the failure rate in distillation towers to be on the decline in fact the opposite is the case the tower failure rate is on the rise and accelerating distillation troubleshooting collects invaluable hands on experiences acquired in dealing with distillation and absorption malfunctions making them readily accessible for those engaged in solving today s problems and avoiding tomorrow s the first book of its kind on the distillation industry the practical lessons it offers are a must for those seeking the elusive path to trouble free distillation distillation troubleshooting covers over 1 200 case histories of problems diagnoses solutions and key lessons coverage includes successful and unsuccessful struggles with plugging fouling and coking histories and prevention of tray packing and internals damage lessons taught by incidents and accidents during shutdowns commissioning and abnormal operation troubleshooting distillation simulations to match the real world making packing liquid distributors work plant bottlenecks from intermediate draws chimney trays and feed points histories of and key lessons from explosions and fires in distillation towers prevention of flaws that impair reboiler and condenser performance destabilization of tower control systems and how to correct it discoveries from shutdown inspections suppression of foam and accumulation incidents a unique resource for improving the foremost industrial separation process distillation troubleshooting transforms decades of hands on experiences into a handy reference for professionals and students involved in the operation design study improvement and management of large scale distillation

corrosion in amine treating units second edition presents a fully updated resource with a broadened focus that includes corrosion in not only refining operations but also in oil and gas production new sections have been added on inhibition corrosion modeling and metallic coatings more detailed descriptions of the degradation mechanisms and integrity operating windows iow are now included as is more in depth information on guidelines for what sections and locations are most vulnerable to corrosion and how to control corrosion in amine units e g using corrosion loop descriptions and providing indicative integrity operating windows for operation to achieve a suitable life expectance provides new insights on the degradation mechanisms occurring in amine treating units and the locations within the unit where they occur discusses how to mitigate and control corrosion in amine units provides guidance for setting up corrosion control documents and inspection and maintenance plans for amine treating units

high acid crudes quickly gets the refinery manager and all other relative personnel up to date on this particular type of feedstock by providing an overview and relevant details of the identification of high acid crudes and their influence on the refinery s process units especially regarding corrosion potential covering the types effects on the various refining units and proper acid stripping techniques high acid crudes effectively trains refinery personnel with a quick reference guide for day to day use in today s refineries due to their discounted value but potential for higher production rates refineries are accepting more of high acidic crude

feedstocks otherwise referred to as opportunity or challenging crude oils refining of these resources is still increasing due to high oil prices with china dominating this market and doubling their production of high acid crudes by 2015 processing these resources can significantly increase any refinery s productivity but knowledge and proper training for the refinery manager and crude supplier is key to reducing the risk that is commonly associated with high acid feedstocks while still maintaining clean production standards provides an overview of the identification of high acid crudes and their influence on the refinery s process units covers the types of high acid crudes effects on the various refining units and proper acid stripping techniques trains refinery personnel as a quick reference guide for day to day use for today s refinery

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presents the latest results of both academic and industrial research in the control modelling and dynamics of two of the most fundamental constituents of all chemical engineering plant includes contributions on fixed bed gas phase and tubular reactors thermal cracking furnaces and distillation columns related to applications in all major areas of chemical engineering including petrochemicals and bulk chemical manufacture contains 51 papers

Yeah, reviewing a books

Corrosion Potential Refinery

Overhead Systems could

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Deconstructing Gang of Youths' "Achilles Come Down": A Lyrical Deep Dive

Gang of Youths' "Achilles Come Down" isn't just a song; it's a sprawling, emotionally resonant narrative that resonates deeply with listeners. Its enduring popularity stems from its relatable themes of grief, faith, mortality, and the complex relationship between fathers and sons. This article will dissect the lyrics of this powerful track through a question-and-answer format, exploring its imagery, symbolism, and underlying meaning. I. The overarching narrative: What is the song fundamentally about? The song is essentially a lament, a deeply personal reflection on the death of David Le'aupepe's father and the subsequent grappling with grief, faith, and the legacy left behind. It's not a simple tale of loss; rather, it's a complex exploration of the emotional and spiritual fallout from that loss, interwoven with reflections on familial relationships and the search for meaning in the face of mortality. The "Achilles" in the title alludes to the vulnerability and inherent fragility of even the seemingly strongest figures – a powerful metaphor for the speaker's father and perhaps even himself. II. Symbolism and Imagery: What are the key recurring symbols and images? The lyrics are rich with potent symbolism. The recurring image of the "burning house" represents the destructive nature of grief and the chaotic upheaval it causes within the speaker. The "sunken ships" and "ocean floor" symbolize despair and the feeling of being overwhelmed by sorrow. The constant

references to faith and religious imagery ("angel," "prayer," "heaven") highlight the speaker's attempt to find solace and understanding within his spiritual beliefs, even as he questions their efficacy. The recurring motif of the father's physical presence – his voice, his smell – contrasts sharply with his absence, emphasizing the profound impact of his death. Think of it like this: the burning house is the immediate crisis; the ocean floor represents the long-term struggle to find solid ground. III. The Father-Son Relationship: How is the relationship depicted? The song paints a nuanced portrait of a complex father-son relationship. It's not idealized; instead, it acknowledges both the love and the unresolved tensions, the silences and unspoken words that characterize many such relationships. The lyrics suggest a father who was both strong and flawed, leaving behind a legacy that the son both cherishes and struggles to comprehend. We see this in the lines "I'd give anything to feel you near, but I know it's just a prayer" – a clear expression of longing but also acceptance of the irreversible loss. This mirrors many real-world experiences where familial relationships are marked by both affection and unresolved conflict, even in death. IV. The Role of Faith: How does faith feature in the song's narrative? Faith acts as both a source of comfort and a source of questioning for the speaker. The lyrics reveal a struggle with belief, a yearning for divine intervention ("I'll pray to heaven if I see you one more time") juxtaposed with a recognition of the lack of easy answers ("and all the gods are dead"). This inner conflict is relatable to many who grapple with religious belief in the face of profound loss and suffering. The questioning of faith doesn't necessarily mean rejection; it reveals the speaker's honest confrontation with his beliefs in the face of overwhelming pain. V. The Musicality and Emotional Impact: How do the lyrics interact with the music? The song's emotional impact isn't solely attributable to the lyrics. The music's soaring instrumentation,

powerful vocals, and dynamic shifts in tempo perfectly mirror the emotional rollercoaster of the narrative. The rising and falling dynamics, the moments of quiet reflection contrasted with bursts of intense emotion, intensify the feeling of grief, hope, and despair that permeates the lyrics. This combination creates a profoundly moving and deeply empathetic listening experience. Imagine the powerful impact of the quiet lines delivered before the building crescendo of the chorus; the music amplifies the meaning already established in the words. Takeaway: "Achilles Come Down" is more than a song about death; it's a testament to the enduring power of human emotion and the complexity of grief. Through powerful imagery, nuanced symbolism, and a gripping narrative, the song explores universal themes of loss, faith, familial relationships, and the search for meaning in the face of mortality, providing a relatable and profoundly moving experience for listeners. FAQs: 1. Is the song autobiographical? Yes, the song is deeply personal and draws heavily from David Le'aupepe's experience with the death of his father. 2. What is the significance of the title "Achilles Come Down"? It refers to the legendary hero Achilles' vulnerability, suggesting that even the strongest figures are susceptible to pain and loss. 3. How does the song challenge conventional notions of grief? It doesn't offer easy answers or simple resolutions; instead, it acknowledges the messiness, the complexity, and the prolonged nature of grief. 4. What is the impact of the song's extended length? The length allows for a deeper exploration of the emotions and experiences depicted, avoiding the rushed feel often found in shorter songs. 5. How has the song resonated with audiences? Its universal themes of loss and faith have allowed it to connect with listeners across diverse backgrounds and experiences, making it a widely celebrated and impactful piece of music.

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