The Advantages of Using Ambient Air Vaporizers Throughout the Entire LNG Market

Introduction

,V LW SRVVLEOH WR DFFRPSOLVK WKHVH JRDOV DW D QXPEHU RI EHOLHIV DQG DWW
SRZHU DQG QR PRYLQJ SDUWV" :KDW LQJUHGLHQWV KDYH EHHQ LQFRUSRUDWHG LQ
VR" :KDW DUH WKH EHQHÀWV WR WKHVH HQGXVHUV RI WKH WHFKQRORJLHV" 7KHVH
LV VRPHWKLQJ WKDW LV UDUHO\ XQGHUVWRRG DFURVV VHFWRUV VR WKRURXJKO\
VKURXGHG LQ P\VWHU\ LQ WKH PLQGV RI WKRVH ZKR GHSHQG RQ WKHP WR GR
FRPPRQSODFH MXVW IROORZ DQ\ OLTXHILHG JDV FRQYHUVLRQ WHFKQRORJ\
,62 FRQWDLQHU WR D PLOOLRQ JDOORQ/1R*I FDSDFLWLHV DQG WR WKH HQG
\RX ZLOO ÀQG YDSRUL]HUV WKDW FDQ EH WUDQVSRUWHG WR VRPHWKLQJ HTXDOL
RULJLQDO /1* GDYDQFHPHQW HIIRUWV

,W WDNHV HQHUJ\ WR DFKLHYH UHJDVLÀFDWLRQ DQG FZCKLPDWHWWKHDWQHJDW
IURP LV WKH NE\ GLVWLQFWLRQ EHWZHHQ GHKUHDEDUPRXVH VSRSOLWWRRFLY]H
HUJ\ FRPHV LQ DOO IRUPV EXW VRPH RI WKH PRUH SRSXODU VRXUFHV IRU
JDVLÀFDWLRQ LQFOXGH DPELHQW DLU VHDZDWHU FRROLQJ WRZHU ZDWHU
HOHFWULFLW\ RU HYHQ FRPEXVWLRQ RI WKH QDWXUDO JDV LWVHOI 6LQFÀ
HVW KDV EHHQ GHYRWHG WR XVLQJ DPELHQW DLU DV DQ HQHUJ\ VRXUFH G
LQÀQLWH IUHH VXSSO\ ]HUR HQYLURQPHQWDO LPSDFW DQG ODFN RI RSHUD
FRPSOH[LW\ TyZÀP U€ GÀ EHÀ OOOOORSH ðð` @ð RSRSPDWHURSRRR-\HDU
LQJ ZRUOG SXEOLF DZDUHQHVV RI KHUHWRIRUH XQLQWHUHVWLQJ FKHPLFD
K\GURFDUERQ EDVHG SURFHVVHV KDV EHHQ D VLJQLÀFDQW LWHP RI IRF
:KDW ZDV RQFH D UHODWLYHO\ PXQGDQH WRSLF KDV EHFRPH VHQVDWLRQD
2QH QHHG QRW ORRN YHU\ IDU WR ÀQG WKH UHDVRQV EHKLQG WKLV VXGGHQ
VHQWDWLRQV GLVFXVVLQJ WKH SRWHQWLDO [WUHPH SRSXODULW\ DQG PDQ\
PHQW IRU WKH ZRUOG·V HQHUJ\ GHPDQGV ÀQGLQJ FU\RJHQV WKDW LV GLUHFW
LQ WKH LQGXVWU\ DV $$9·V DQG IRUFH
/1* UHSUHVHQWV WKH ZRUOG·V ODUJHVW
PDQG VLPSO\ EHFDXVH WKH PDMRULW\ RI WKH
UDWHG E\ RFHDQV DQG FRQWLQHQWV
PDWWHU DQG WKHUH DUH PDQ\ FRQWLQHQWV
WHFKQRORJLHV DVVRFLDWHG ZLWK
RGRORJ\ IRU UHJDVLÀ\LQJ /1* UHOHJ

Figure 1. Sample illustration of the heat transfer mechanism using a 12- n extrusion.

Background

DSSURYH WKH SURFHVV 7KH JHQHUDO S
EHOLHIV D QXPEHU RI EHOLHIV DQG DWW
LQ P\ EDFN \DUGµ WR ´LV LW VDIH IRU P
UHVHDUFKHUV DWH FDUERQ HPLVVLF

1R UHDVRQDEOH SHUVRQ ZRXOG DUJXH
EH WKH DQVZHU WR WKH SHUHQQLDO ¶I
QHZ JHQHUDWLRQ 6LPLODUO\ WKH FR
RULJLQDO /1* DGYDQFHPHQW HIIRUWV

IURP LV WKH NE\ GLVWLQFWLRQ EHWZHHQ GHKUHDEDUPRXVH VSRSOLWWRRFLY]H
HUJ\ FRPHV LQ DOO IRUPV EXW VRPH RI WKH PRUH SRSXODU VRXUFHV IRU
JDVLÀFDWLRQ LQFOXGH DPELHQW DLU VHDZDWHU FRROLQJ WRZHU ZDWHU
HOHFWULFLW\ RU HYHQ FRPEXVWLRQ RI WKH QDWXUDO JDV LWVHOI 6LQFÀ
HVW KDV EHHQ GHYRWHG WR XVLQJ DPELHQW DLU DV DQ HQHUJ\ VRXUFH G
LQÀQLWH IUHH VXSSO\ ]HUR HQYLURQPHQWDO LPSDFW DQG ODFN RI RSHUD
FRPSOH[LW\ TyZÀP U€ GÀ EHÀ OOOOORSH ðð` @ð RSRSPDWHURSRRR-\HDU
LQJ ZRUOG SXEOLF DZDUHQHVV RI KHUHWRIRUH XQLQWHUHVWLQJ FKHPLFD
K\GURFDUERQ EDVHG SURFHVVHV KDV EHHQ D VLJQLÀFDQW LWHP RI IRF
:KDW ZDV RQFH D UHODWLYHO\ PXQGDQH WRSLF KDV EHFRPH VHQVDWLRQD
2QH QHHG QRW ORRN YHU\ IDU WR ÀQG WKH UHDVRQV EHKLQG WKLV VXGGHQ
VHQWDWLRQV GLVFXVVLQJ WKH SRWHQWLDO [WUHPH SRSXODULW\ DQG PDQ\
PHQW IRU WKH ZRUOG·V HQHUJ\ GHPDQGV ÀQGLQJ FU\RJHQV WKDW LV GLUHFW
LQ WKH LQGXVWU\ DV $$9·V DQG IRUFH
/1* UHSUHVHQWV WKH ZRUOG·V ODUJHVW
PDQG VLPSO\ EHFDXVH WKH PDMRULW\ RI WKH
UDWHG E\ RFHDQV DQG FRQWLQHQWV
PDWWHU DQG WKHUH DUH PDQ\ FRQWLQHQWV
WHFKQRORJLHV DVVRFLDWHG ZLWK
RGRORJ\ IRU UHJDVLÀ\LQJ /1* UHOHJ
DPELHQW YDSRUL]HUV 7RGD\ LW LV FR
WKH LQGXVWULDO JDV FRPSDQLHV ZLWK
\HDU IRU GHSOR\PHQW DOO DURXQG WK
DFFRPPRGDWH ÁRZ UDWHV ² WLPHV
\HDUV DJR 7KH DPELHQW DLU WHFKQ
LQIDQF\ KDOI D FHQWXU\ DJR

continued