* **IN THE HIGH COURT OF DELHI AT NEW DELHI**

Judgment Reserved on : 12th January, 2023
% ***Judgment Delivered on : 10th March, 2023***

\+ **C.A.(COMM.IPD-PAT) 18/2022 & I.A. 3580/2022**

TAPAS CHATTERJEE ..... Appellant
Through: Ms. Rajeshwari H. and Mr. Tahir A.J., Advocates.

versus

ASSISTANT CONTROLLER OF PATENTS AND DESIGNS & ANR. ..... Respondents
Through: Mr. Harish Vaidyanathan Shankar, CGSC with Mr. Srish Kumar Mishra, Mr. Sagar Mehlawat and Mr. Alexander Mathai Paikaday, Advocates for R-1.
Mr. Prashant Phillips with Ms. Vaishali Joshi, Mr. Rishabh Paliwal and Mr. Gursimran S. Narula, Advocates for R-2.

CORAM:
HON'BLE MR. JUSTICE AMIT BANSAL

JUDGMENT

AMIT BANSAL, J.

1. The present appeal has been filed under Section 117A of the Patents Act, 1970 (hereinafter referred as 'the Act') impugning the order dated 28th December, 2021 passed by the respondent no. 1, Assistant Controller of Patents and Designs (hereinafter "Controller"), refusing the Indian Patent Application No. 201911036748 for the invention titled "*Recovery of Potassium Sulphate and other valuable products from spent wash leading to*

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.03.2023 16:42:23

ZLD system" (hereinafter "subject patent application").

2. Brief facts relevant to decide the present appeal are as follows:

2.1 The appellant had filed the subject application on 12th September, 2019 at the Patent Office, New Delhi.

2.2 The Patent Office examined the subject application and issued a First Examination Report (FER) on 25th February, 2020, in which various objections were raised on behalf of the Patent Office. The main objection pertained to lack of inventive steps in terms of Section 2(1)(ja) of the Act and the subject matter of the Claims falling under Section 3(d) of the Act.

2.3 The appellant filed a response to the aforesaid FER vide letter dated 27th March, 2020, wherein the appellant attempted to distinguish the subject invention from the prior arts and made submissions with regard to the subject invention being novel and inventive.

2.4 On 29th June, 2020, the Patent Office issued a hearing notice fixing the date of hearing for 28th July, 2020, wherein once again, the objections were taken with regard to lack of inventive step in view of cited prior art documents and non-patentability under Sections 3(d) and 3(e) of the Act.

2.5 Pre-hearing submissions were filed on behalf of the appellant on 27th July, 2020 rebutting the objections taken by the Patent Office in the hearing notice. At the oral hearing, the appellant made submissions with regard to novelty and inventive steps, especially in light of the cited prior art documents and explaining how the subject invention is not hit by Sections 3(d) and 3(e) of the Act.

2.6 The appellant filed written submissions on 11th August, 2020 with

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.08.2023 10:42:23

respect to the objections taken by the Patent Office in the oral hearing.

2.7 The respondent no. 2 thereafter filed a pre-grant opposition under Section 25(1) of the Act on 2nd September, 2020 on the following grounds:

Sec. 25 (1) (b)	The subject matter of the impugned Application is not novel.
Sec. 25 (1) (e)	The subject matter of the impugned Application is obvious and does not involve any inventive step.
Sec. 25 (1) (f)	The subject matter of the impugned Application is not patentable under Section 3(d) of the Act.
Sec. 25 (1) (g)	The complete specification of the impugned Application does not sufficiently and clearly describe the invention or the method by which it is to be performed.
Sec. 25 (1) (f)	The subject matter of the impugned Application is not patentable under Section 3(a) of the Act.

2.8 On 5th March, 2021, the appellant filed a response to the pre-grant opposition, wherein the appellant once again attempted to distinguish the subject invention from the cited prior art documents. In addition, the appellant also explained how the subject invention is not obvious to a person skilled in the art.

2.9 The respondent no.1 issued a hearing notice dated 3rd September, 2021 fixing the date of hearing for 20th October, 2021 for disposing the pre-grant opposition. The appellant and the respondent no.2 filed written submissions on 8th November, 2021 in relation to the pre-grant opposition hearing.

3. The impugned order dated 28th December, 2021 was passed by the respondent no.1, refusing the subject application on the grounds of being non-patentable under Section 3(d) of the Act and lack of inventive steps under Section 2(1)(ja) of the Act and the subject invention.

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.03.2023 10:42:23

4. Counsel appearing on behalf of the appellant has made the following submissions:

I. The respondent no.1 having acknowledged that the appellant's invention is novel, the bar of Section 3(d) of the Act cannot apply.

II. The respondents failed to identify a reference point process which can be considered as a 'known' or 'old process' and the impugned order was passed by the respondent no.1 without identifying the said reference point process. Hence, the appellant had no occasion to answer with reference to any prior art as to how the bar of Section 3(d) of the Act would apply. Reliance in this regard is placed on the judgment of this Court in ***DS Biopharma* v. *Controller***, 2022 SCC Online Del 3211.

III. A combination of steps is patentable under Section 3(d) of the Act, even if some ingredients of the process or a step of the entire process is known. Reliance is placed on an extract from the Commentary ***Patent Law by P. Narayanan (4th Edition)*** in support of this submission.

IV. Where the process is not hit by the bar of Section 3(d) of the Act, the need to involve a new reactant or ingredient does not arise. In the appellants' case, there is a new step of 'thermal decomposition' with repeated fractionation, which leads to a new result, i.e., providing enormous amount of pure commercially usable potassium sulphate and water that can be recycled and reused. This is a novel and inventive process as it follows different sequence of steps.

V. The respondents must identify prior art to show how a person skilled in the art would arrive at a subject invention, without referring to the

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.02.2024 10:42:23

subject invention. The subject invention cannot be used as a blueprint to map the prior art onto the subject invention. This would amount to hindsight analysis. The prior arts, D-1 and D-2, teach two different processes, which cannot be combined at all. Reliance in this regard is placed on the judgment in ***Avery Dennison Corporation* v. *Controller of Patents and Designs***¸ (2023) 93 PTC 26.

VI. Detailed submissions were made on behalf of the appellant in response to the FER as well as the written submissions, wherein the subject invention has been distinguished from the prior arts cited by the Patent office. However, the Patent office has passed a cryptic order without dealing with any of the submissions made on behalf of the appellant.

VII. The direction and process followed by D-1 and D-2 are entirely different from each other and no inspiration can be drawn from these documents to arrive at the appellant's process. The first stage of acidifying the spent wash is common with D-1 and last step of crystallisation is common with D-2. The steps in between are created by appellant without any inspiration from D-1 and D-2.

5. Counsel appearing on behalf of the respondent no.1 has made the following submissions:

I. The subject application does not reveal any inventive feature over the cited prior art documents. The process in the subject application does not involve any new reactant, nor results in the formation of a new product. Hence, the claims of the subject application are non-patentable in terms of Section 3(d) of the Act.

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.04.2023 10:42:23

II. Due to absence of experimentation in the subject application, the technical leap or economic significance of the invention has not been established by the appellant.

6. Counsel appearing on behalf of the respondent no. 2 has made the following submissions:

I. The appellant has used general terms in the subject application, which has resulted in overlapping of the broad claims with the teachings of the cited prior art references.

II. A comparison of the subject invention with the prior art, D-2, shows that the subject invention does not differ from the teachings of D-2. Like the claim made in the subject application, D-2 also results in recovery of potassium sulphate. The steps claimed in the subject application are clearly taught by D-2. D-2 is described in reference 'Background Section' of the complete specification filed by the appellant. Therefore, the subject invention would be obvious to a person skilled in the art.

III. Merely because the appellant uses the process of thermal decomposition to breakdown one compound into two or more new compounds, would not result in any technical advancement with the cited prior art references.

IV. The claimed process in claims 1 to 11 of the subject application squarely fall within the scope of Section 3(d) of the Act, as being a mere use of a known process, which is described in D-2. The processes used in the claim are essentially removing, concentrating, subjecting, dissolving, and recovering using known reagents and solvents. The said processes do not result in a new product. The end-

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.02.2023 10:42:23

product in all the prior art documents, D-1, D-2, D-3 and D-4 is the same, i.e., Potassium Sulphate.

V. The appellants have failed to provide any experimental data, examples or any supporting evidence, to substantiate the economic advantages in the claimed process with regard to recovery of potassium sulphate.

VI. With regard to recycling of water, neither the independent claim, nor the dependent claim talks about this aspect of the invention.

7. I have heard the counsels for the parties and perused the record of the case, including the FER response, hearing notice, and written submissions.

<u>Analysis and Findings</u>

8. At the outset, it may be relevant to refer to the claims made by the appellant in the subject application:

> *"1. <u>A process (100) for recovering potassium sulphate</u> and other value added product from distillery spent wash, said process comprising:*
>
> *a. removing (102) high molecular weight organic compounds from the spent wash to obtain a first liquid fraction;*
>
> *b. concentrating (104) the first liquid fraction to obtain a first solid fraction;*
>
> *c. subjecting the first solid fraction to thermal decomposition (106) to obtain a second solid fraction;*
>
> *d. dissolving (108) the second solid fraction in a solvent to obtain a second liquid fraction; and*
>
> *e. recovering (110) potassium sulphate from the second liquid fraction.*
>
> *2. The process as claimed in claim 1, wherein the step of removing (102) high molecular weight organic compounds from the spent wash to obtain the first liquid fraction comprises:*

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.03.2023 16:42:23

a. adding (202) acid to the spent wash to obtain a third liquid fraction; and
b. filtering (204) the third liquid fraction to obtain high molecular weight organic compounds and the first liquid fraction.
3. The process as claimed in claim 2, wherein the high molecular weight organic compound thus obtained is dried (206) to obtain powdered high molecular weight organic compounds.
4. The process as claimed in claim 1, wherein the step of concentrating (104) the first liquid fraction to obtain the first solid fraction comprises:
a. evaporating (208) the first liquid fraction to obtain a slurry and a vapour phase; and
b. drying (210) the slurry to obtain the first solid fraction.
5. The process as claimed in claim 4, wherein the vapour phase water is condensed (212) to obtain re-usable water.
6. The process as claimed in claim 1, wherein the thermal decomposition (106) is performed in anaerobic conditions.
7. The process as claimed in claim 1, wherein the step of dissolving (108) the second solid fraction in the solvent to obtain the second liquid fraction comprises dissolving (108) the second solid fraction in 20-30% water.
8. The process as claimed in claim 1, wherein the step of recovering (110) potassium sulphate from the second liquid fraction comprises:

a. subjecting the second liquid fraction to crystallization (216) to obtain a first mother liquor; and
b. filtering (218) the first mother liquor to obtain potassium sulphate and a first filtrate.

9. The process as claimed in claim 8, wherein magnesium sulphate is recovered by concentrating (220) and/or drying (222) the first filtrate.

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.02.2023 10:42:23

> *10. The process as claimed in claim 1, wherein activated carbon is further recovered from distillery spent wash.*
> *11. The process as claimed in claim 10, wherein the activated carbon is recovered from the second liquid fraction.*
> *12. The process as claimed in claim 11, wherein the activated carbon is recovered from the second liquid fraction by filtering (224) the second liquid fraction."*

9. The two grounds for refusal taken by the Controller in the impugned order are as follows:

i. Non-Patentability under Section 3(d) of the Act.

ii. The subject patent application lacks inventive step in terms of Section 2(1)(ja) of the Act.

Objection under Section 3(d) of the Act

10. With regards to the first objection, the relevant findings of the Controller are set out below:

> "*(iv)* ***The office is in the same opinion with the opponent view on Sec. 25 (1) (f) i.e. "the subject matter of the impugned Application is not patentable under Section 3(d) of the Act".*** *The applicant argues that, as the claims of impugned application are Novel, does not fall within the ambit of section 3(d). But, as the process of the impugned application does not involve any new reactant nor results in a new product, and hence, the claims of impugned application are not allowable u/s 3(d) of The Patent Act 1970.*"

11. At the outset, it maybe noted that the subject patent application is directed towards a set of processes and not towards a particular substance. A reference may be made to Section 3(d) of the Act, which is extracted below:

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.03.2023 10:42:23

> *"3. What are not inventions.—**The following are not inventions within the meaning of this Act**,—*
> *a …*
> *b …*
> *c …*
> *(d) the mere discovery of a new form of a known substance which does not result in the enhancement of the known efficacy of that substance or the mere discovery of any new property or new use for a known substance or **of the mere use of a known process,** machine or apparatus **unless such known process results in a new product or employs at least one new reactant.***
> *Explanation.—For the purposes of this clause, salts, esters, ethers, polymorphs, metabolites, pure form, particle size, isomers, mixtures of isomers, complexes, combinations and other derivatives of known substance shall be considered to be the same substance, unless they differ significantly in properties with regard to efficacy;"*

12. Even though Section 3(d) of the Act makes a reference to '*known process*', in my view, the term '*known process*' would also include multiple known processes, which is the case in the present appeal.

13. In terms of Section 3(d) of the Act, a patent can be granted in respect of a '*known process*' only when such a '*known process*' results in a new product or employs at least one new reactant. There is a material difference between the terminology '*discovery of a new form of a known substance*' and '*mere use of a known process*'. In the case of discovery of new form of a known substance, the patent can be granted only if the said new form results in enhancement of the known efficacy of the substance, whereas there is no such provision for enhancement of known efficacy in respect of known processes. Therefore, the scope for patentability of processes is

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.09.2024 14:47:22

narrower than substances.

14. A perusal of the cited prior art documents, D1 and D2, would demonstrate that the processes used in the subject invention are nothing more than a mere use of a combination of known processes. All the processes that are a part of the claims of the subject patent application are disclosed in the cited prior art documents, D1 and D2. Further, the appellant is not using any new reactant in the said processes, nor is the final process resulting in the creation of a new product. The end product in all the prior art documents as well as the subject patent application is the same, **Potassium Sulphate**.

15. The only difference in the subject patent and the cited prior arts is that the appellant claims that the process adopted by them is a zero liquid discharge process, whereas the processes described in the prior arts result in the discharge of effluents. It is the claim of the appellant that because the subject patent is zero discharge process, it does not need any further treatment, and results in commercially usable potassium sulphate and water.

16. In my view, the useful product being produced by the subject patent is still the same, Potassium Sulphate and the individual processes claimed by the appellant are known in the art. Therefore, this argument of the appellant also does not overcome the objection raised by the Controller under Section 3(d) of the Act.

17. Counsel for the appellant has placed reliance on the judgement of the Coordinate Bench of this Court in ***D.S. Biopharma Limited*** (supra). The aforesaid judgement was in the context that the Controller had not provided the details of a '*known substance*' on account of which objection under Section 3(d) of the Act was raised. Therefore, it was observed that

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.09.2023 14:47:22

appellant was not given adequate opportunity to deal with the objection under Section 3(d) of the Act. Accordingly, in the absence of proper identification of the '*known substance*' in the hearing notice and lack of opportunity being given therein, the impugned order was set aside. The relevant extract of the said judgement is set out below:

> *19. Therefore, holistically read, the Appellant has not had adequate opportunity to deal with the objection under Section 3(d) in as much as apart from merely specifying the said objection for the first time in the hearing notice, the manner in which the said objection was attracted was completely absent.*
>
> *20. In the absence of the proper identification of the known substance in the hearing notice and a lack of proper opportunity being afforded to respond to the objection under Section 3(d), the impugned order is not sustainable.*

18. The invention in the subject application deals with a process patent and not a product patent. Further, the details of the known processes are provided in the prior art documents referred in the hearing notice. Therefore, the judgment in ***DS Biopharma*** (supra) would be of no assistance to the appellant.

19. The appellant also relies on an extract from ***Patent Law by P. Narayanan (4th Edition)*** to support their case that the subject invention constitutes patentable subject matter. The said extract is set out below:

> *2-27* ***Process patents.*** *The definition of invention includes an art or process of manufacture Thus processes are good subject matter of patents. If the result of a new process is a new article, or a better article, or a cheaper article than that produced by old methods, the process is patentable, provided of course that it required an exercise of the inventive faculty to*

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.09.2024 14:37:22

> *arrive at it.* ***It has also been held that a new and alternative method of arriving at the same result, irrespective of whether that result is better or cheaper, may be patentable.*** *But a process to be patentable must be a process which leads to some result and the result arrived at must be useful, though it need not be an article at all; for example, a new process for chemically cleaning dirty linen would be good subject matter, but a process of treating material, of which no result at all could be predicated, would not be patentable.*

20. The appellant also relies upon the Judgement in ***Catalysts & Chemicals India v. Imperial Chemical, (1976) IPLR 84***, where it has been held that even if the individual processes sought to be patented are not novel, the patentability of the combination of the steps/processes used should be considered. The relevant finding with respect to the said judgement as given in ***P. Narayanan (4th Edition)*** is set out below:

> *"It has been observed by the Controller General that* ***generally a process is considered to be new if*** *(1) it results in a new product or (2) it uses new starting materials or (3)* ***it employs a novel combination of steps even if such steps themselves may not be per se novel.****"*

21. In my considered view, the above argument also does not overcome the objection raised under Section 3(d) of the Act, as the language of Section 3(d) is clear to the effect that for a process to constitute patentable subject matter, it needs to employ at least one new reactant or result in the production of a new product. In the present case, neither of the aforesaid two conditions have been met by the appellant.

22. The claimed process in the claims 1 to 11 of the subject patent

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.09.2024 14:32:22

application squarely falls within the scope of Section 3(d) of the Act, as being a mere use of known processes, which are already disclosed in the prior art documents, D-1 and D-2. Therefore, in view of the discussion above, the subject invention is not patentable under Section 3(d) of the Act. There is no infirmity in the impugned order of the Controller that the subject invention is not patentable as it squarely falls within the scope of the subject matter excluded from patentability under Section 3(d) of the Act.

23. Even though the non-patentability under Section 3 of the Act is in itself enough for refusal of the application for grant of a patent, nevertheless, for the sake of completeness, I am also examining the finding of lack of inventive step under Section 2(1)(ja) of the Act.

Objection of lack of inventive step

24. The relevant observations of the Controller are set out below:

> *"The office is in the same opinion with the opponent, as BMSW is the aqueous effluent obtained upon anaerobic digestion of Spent Wash (SW) and the process as disclosed in either D1 and/or D2 is substantially similar. Moreover, the steps (b), (c), (d) & (e) of Claim 1 of the impugned application are standard chemical process plant operations, viz., concentration, thermal decomposition, dissolution & recovery; and is obvious for a person skilled in the art after going through the disclosures made in D1 alone, D2 alone, D1-D2 in combination, D3 in combination with D1 or D2 or both, D4 in combination with D1 or D2 or both and D1-D4 combined; and hence the present set of claims (claim 1-11) does not involve any inventive merits.*"

25. The Division Bench of this Court in ***F. Hoffmann-La Roche Ltd. and Ors.* v. *Cipla Ltd.,*** 2016(65) PTC 1 (Del), has laid down the seminal test to

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.09.2024 14:07:22

be followed for determining inventive step and lack of obviousness. The steps involved in the said test are as follows:

> "*Step No.1 To identify an ordinary person skilled in the art,*
> *Step No.2 To identify the inventive concept embodied in the patent*
> *Step No.3 To impute to a normal skilled but unimaginative ordinary person skilled in the art what was common general knowledge in the art at the priority date*
> ***Step No.4 To identify the differences, if any, between the matter cited and the alleged invention and ascertain whether the differences are ordinary application of law or involve various different steps requiring multiple, theoretical and practical applications,***
> ***Step No.5 To decide whether those differences, viewed in the knowledge of alleged invention, constituted steps which would have been obvious to the ordinary person skilled in the art and rule out a hindside approach****"*

26. In line with the steps listed above, at the appellate stage, for determining inventive step, I shall start at Step 4 and identify the differences, if any between the prior arts identified by the Controller and the subject patent application.

27. In the present case, the following two prior arts have been identified for the purposes of determining inventive step under Section 2(1)(ja) of the Act:

D1: US20180257945 with publication date of 13th September, 2018

D2: Indian Standard IS: 8032-1976 (reaffirmed 2003); "Guide For Treatment Of Distillery Effluents", published by BIS in August 1976

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.09.2024 15:44:22

28. For analysing the aspect of inventive step, I shall, in brief make a comparison of the subject patent application along with the aforesaid two prior art references.

Comparison with Prior Art D-1

29. The table below highlights the comparison of the subject application and prior art D-1.

Independent Claims of the subject patent	**Disclosure in prior art Document D1**
A process (100) for **recovering potassium sulphate and other value added product** from distillery spent wash,	"[0010] Another object of the invention is to **recover potassium** from BMSW, **to produce** multi-nutrient potassic fertilizers viz., potassium nitrate, **potassium sulphate, mono potassium phosphate** etc." "[0012] Another object of the invention is to utilise solid waste for preparation **of value-added by-products**."
a. removing (102) high molecular weight organic compounds from the spent wash to obtain a first liquid fraction;	"[0016] (ii) clarification of slurry from step (i), through in-situ formation of aluminium hydroxide gel to **effect removal of fine particulates, preferably in multiple stages**;"
b. **concentrating** (104) the first liquid fraction to obtain a first solid fraction; (step b)	"[0004] Reference may be made to section 5.1.6.3 of Indian Standard IS: 8032-1976 (reaffirmed 2003) "GUIDE FOR TREATMENT OF DISTILLERY EFFLUENTS", which teaches about process for the recovery of potash from distillery spent wash. The process involves neutralization of spent wash followed by **concentration** and incineration to produce "spent wash coke" which on combustion produces ash. This ash is then leached with water."

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.09.2024 16:41:22

c. subjecting the first solid fraction to **thermal decomposition** (106) to obtain a second solid fraction; (step c)	"[0026] (xii) production of alumina rich activated carbon, by **pyrolysing** and activating the sludge from step (ii);"
d. dissolving (108) the second solid fraction in a solvent to obtain a second liquid fraction; and (step d)	--
e. **recovering** (110) potassium sulphate from the second liquid fraction. (step e)	"[0010] Another object of the invention is to **recover potassium** from BMSW, **to produce** multi-nutrient potassic fertilizers viz., potassium nitrate, **potassium sulphate, mono potassium phosphate** etc. [0023] (ix) removal of residual tartrate, by treating the potassium nitrate liquor [from step (viii)] with calcium oxide & nitric acid; [0024] (x) crystallisation of potassium nitrate (purity >99%), by cooling/evaporating the potassium nitrate liquor [from step (ix)];"

30. It is clear from the table above that only two differences emerge between the prior art D-1 and the subject patent application. One, that the subject patent application incorporated thermal decomposition and the prior art document D-1 utilizes pyrolyzing. As per the International Union for Pure and Applied Chemistry (IUPAC) Goldbook, 'pyrolyzing' is the process of thermal decomposition of materials at elevated temperatures in an inert environment. Therefore, this difference in terminology is not a technical

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.09.2024 14:40:22

difference but only usage of different words for the similar processes.

31. The next difference is that Step d has not been covered by the prior art. However, the mere dissolution of a solid (referred to as second solid fraction in the patent application) in a solvent to obtain a solution is a very well-known practice. Therefore, this feature of claim 1 of the subject application can in no way be termed to be satisfying inventive step criteria.

Comparison with Prior Art D-2

32. The table below highlights the comparison of the subject application and prior art D-2.

Independent Claim of the subject patent	**Disclosure in Prior Art Document, D-2**
A process (100) for **recovering potassium sulphate** and other value added product from distillery spent wash, (step a)	"5.1.6.1 Recovery of potash by concentration and incineration of molasses spent wash was practised abroad during the First World Wars and up to late thirties. Jackson reported recovery of potash from beet molasses. In 1945, Reich described a process wherein by dilution, acidification and heating of molasses prior to fermentation, about 88 percent calcium salts could be precipitated as calcium sulphate. **Activated carbon and salts of potassium and sodium could be obtained by suitable treatment of spent wash. Activated carbon and salts of potassium and sodium could be obtained by suitable treatment of spent wash.**

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.09.2024 14:17:22

	5.1.6.3 Chakrabarty and Bhaskaran carried out a pilot plant study to **recover potassium salts from spent wash of a molasses distillery in India**.
b. **concentrating** (104) the first liquid fraction to obtain a first solid fraction; (step b) c. subjecting the **first solid fraction to thermal decomposition (106) to obtain a second solid fraction**; (step c)	5.1.6.1 **Recovery of potash by concentration and incineration of molasses spent wash** was practised abroad during the First World Wars and up to late thirties... In this process, **raw spent wash was neutralized with lime and evaporated to about 75 percent solids in a forced circulation** evaporator under vacuum by duplicating a multiple-effect system (step b). **Thick liquor was burnt in an incinerator (step c) where the spent wash was converted to a substance called 'spent wash coke**, which burnt itself under the grates of the incinerator and turned into ash, thereby supplying necessary heat required for the incoming thick liquor. Para 5.1.6.1 on page 150 of the appellant's documents with the appeal.
d. **dissolving (108) the second solid fraction in a solvent** to obtain a second liquid fraction; and (step d)	*The ash was collected and leached with water by which all the soluble potassium and sodium salts dissolved in it, leaving behind iron, silica, calcium and other impurities*

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.09.2024 14:07:22

	in the residue. **Para 5.1.6.3. line 10 page 151** of the appellant's documents filed with the Appeal.
e. ***recovering (110) potassium sulphate from the second liquid fraction*** ***(***step e***)***	*The solution was alkaline due to the presence of potassium carbonate, which was* ***filtered and neutralized with sulphuric acid and further concentrated in the evaporator****. Potassium salts in the form of chloride and* ***sulphate were crystallized from the concentrated solution in the crystallizer.*** **Para 5.1.6.3. line 12 page 151** of the appellant's document filed with the Appeal.

33. The above table captures the similarities between the subject patent application and the prior art document D-2. It is pertinent to note that the prior art document D-2 is a standard document and not a patent document.

34. From the table above, it emerges that there is hardly any difference between the prior art D-2 and the subject patent application.

35. In light of the comparisons above, it is clear that by combining the teachings of the prior arts, D-1 and D-2, a person skilled in the art would be able to come to the subject matter claimed in the subject patent application.

36. The appellant has also claimed that the aforesaid prior arts teach different processes and the teachings of both the prior arts cannot be combined. With this claim, the appellant attempts to say that combining prior arts, D-1 and D-2, is a hindsight analysis. The relevant extract with

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.03.2024 14:37:22

regard to hindsight analysis in ***Avery Dennison*** (Supra) is extracted as under:

> *"32. Some of the fundamental principles while analysing inventive step and whether an invention is obvious or not are:*
>
> *i. That simplicity does not defeat an invention - even simple inventions are patentable.*
>
> *ii. The inventive step has to be assessed on the basis of the date of priority of the subject patent and not after the publication of the same i.e., it is not permissible to do a hindsight analysis or an ex-post facto analysis."*

37. In the present case, it cannot be said that the above analysis is a hindsight reconstruction by using prior arts as both the prior art documents, D-1 and D-2, have been referred to in the background of the complete specification of the subject patent application itself. Therefore, it cannot be said that there is no reason for a person skilled in the art to combine the teachings of the two prior art documents, given that the applicant is itself referring to both of them. In my considered view, no ground is made out to claim that the analysis of inventive step has been guided by hindsight reconstruction. Hence, the judgement in ***Avery Dennison*** (Supra) relied upon by the appellant has no applicability in the present case.

38. In terms of the discussion above, the subject patent application does not appear to be constituting a technical advancement, which would be non-obvious to a person skilled in the art. Therefore, the refusal of the subject patent application by the Controller on the ground of inventive step is justified.

39. In the overall facts and circumstances of this case, both the grounds

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.03.2023 14:07:22

cited by the Controller for refusing the subject patent application under Section 15 of the Act have been upheld. The subject patent application is hit by non-patentability under Section 3(d) of the Act and lacks inventive step in terms of Section 2(1)(ja) of the Act.

40. Accordingly, the appeal is dismissed, with no order as to costs.

41. All pending applications stand disposed of.

AMIT BANSAL, J.

MARCH 10, 2023
sr

Signature Not Verified
Digitally Signed By:AMIT BANSAL
Signing Date:10.03.2023 14:07:22